Instructions for Operators

Burroughs Moon-Hopkins Billing Machine

Burroughs Adding Machine Company

Hazel Austin - Billing Dept.

Foreword

THERE are two styles of Burroughs Moon-Hopkins Billing Machines: Style 7202 (Tenth Fractional Biller), whose calculating mechanism prints, adds, multiplies and subtracts tenth fractions; and Style 7205 (Eighth Fractional Biller), whose calculating mechanism prints, adds, multiplies and subtracts eighth fractions.

OPERATION of these two styles is exactly the same, and their appearance varies only on the Red Keys where, on Style 7205, eighth fractions are shown. Because of this similarity, pictures of only one style of machine (7202) are shown throughout this book, except on page 29.

HOWEVER, invoices are shown illustrating work on both machines. Invoices illustrating work on both styles are shown on pages 31, 32, 39, 40, 41, 42, 43 and 44. Invoices illustrating Style 7202 are shown on pages 33, 34 and 35. Invoices illustrating Style 7205 are shown on pages 36, 37 and 38.

THIS book of instructions is designed for reference purposes. It touches on the principles of operation employed *in all lines of business* in connection with the Burroughs Moon-Hopkins Billing Machine.

IN EACH line of business *only a few principles of operation* are applied. Therefore, it is not necessary that an operator know everything contained in the following pages.

HOWEVER, study of this book, started at the beginning and carried through to the end, will give a thorough knowledge of operation and a realization of the wonderful possibilities of the machine.

SINCE this is largely a book of reference, an Index is placed in the back of the book. This will make it easy for an operator to look up any detail of operation on which more information is desired.

Figure 2

The upper bar is the Space Bar of the typewriter. Depression of the lower bar causes the motor to operate the machine. Red Keys are used for printing, for addition, for subtraction and for registering the number to be multiplied. Black Keys just to the right are Multiplying Keys only. On them is registered the number by which the number written on the Red Keys is to be multiplied.

To the left of the Red Keys are the Result Keys by means of which totals, differences and products are printed.

What the Burroughs Moon-Hopkins Billing Machine Is

THE Burroughs Moon-Hopkins Billing Machine is several machines built into one and so co-ordinated that they form one complete, compact, versatile unit.

The machine has a typewriter with standard billing keyboard that prints only in capital letters, as is customary in billing, and writes fractions or whole numbers required for billing.

Prints Totals Automatically

THE typewriter section can be used independently or can be used to type in addresses, shipping data, descriptions or other information in conjunction with the adding, subtracting or multiplying mechanisms.

On the Burroughs all totals, differences and products are printed *directly from the figuring mechanism by depressing a Result Key*, the same as on any Burroughs Listing Machine. *It is not necessary to copy the answer on the paper with the typewriter section.* This is a tremendous factor in speed and accuracy.

Makes Every Kind of Calculation

THERE are four separate adding machines called Registers, three Front and one Rear. A set of figures may be added and printed in each of these and a grand total obtained of all sets. Amounts may be transferred about from one Register to another. Totals are printed directly from the adding mechanism.

By use of the Subtract Key, direct subtraction is performed. Differences are automatically printed by depression of one Result Key.

Multiplication is a very large part of billing work. This is taken care of on the Burroughs by an automatic multiplier. For example, to multiply a number by 9, the "9" Key needs to be depressed only once. Products are automatically printed by depression of one Product Key.

Handles Any Fraction Rapidly

FRACTIONS must be handled frequently in billing work. The Burroughs prints, adds, subtracts and multiplies fractions directly with the figuring mechanism just as rapidly as it handles whole numbers.

To sum up, the Burroughs Moon-Hopkins Billing Machine combines a typewriter, four adding machines, a subtracting machine, a multiplying machine, and a mechanism for handling fractions.

Performs All Invoicing Operations

THE *Burroughs is the only machine that performs all the operations of invoicing*—the typing, adding, subtracting, multiplying, carrying several totals at once, handling fractions, figuring discounts and extending the net amount.

In other words, the Burroughs is truly a billing machine, designed and built specifically for making invoices from start to finish—from address and shipping data to the net amount.

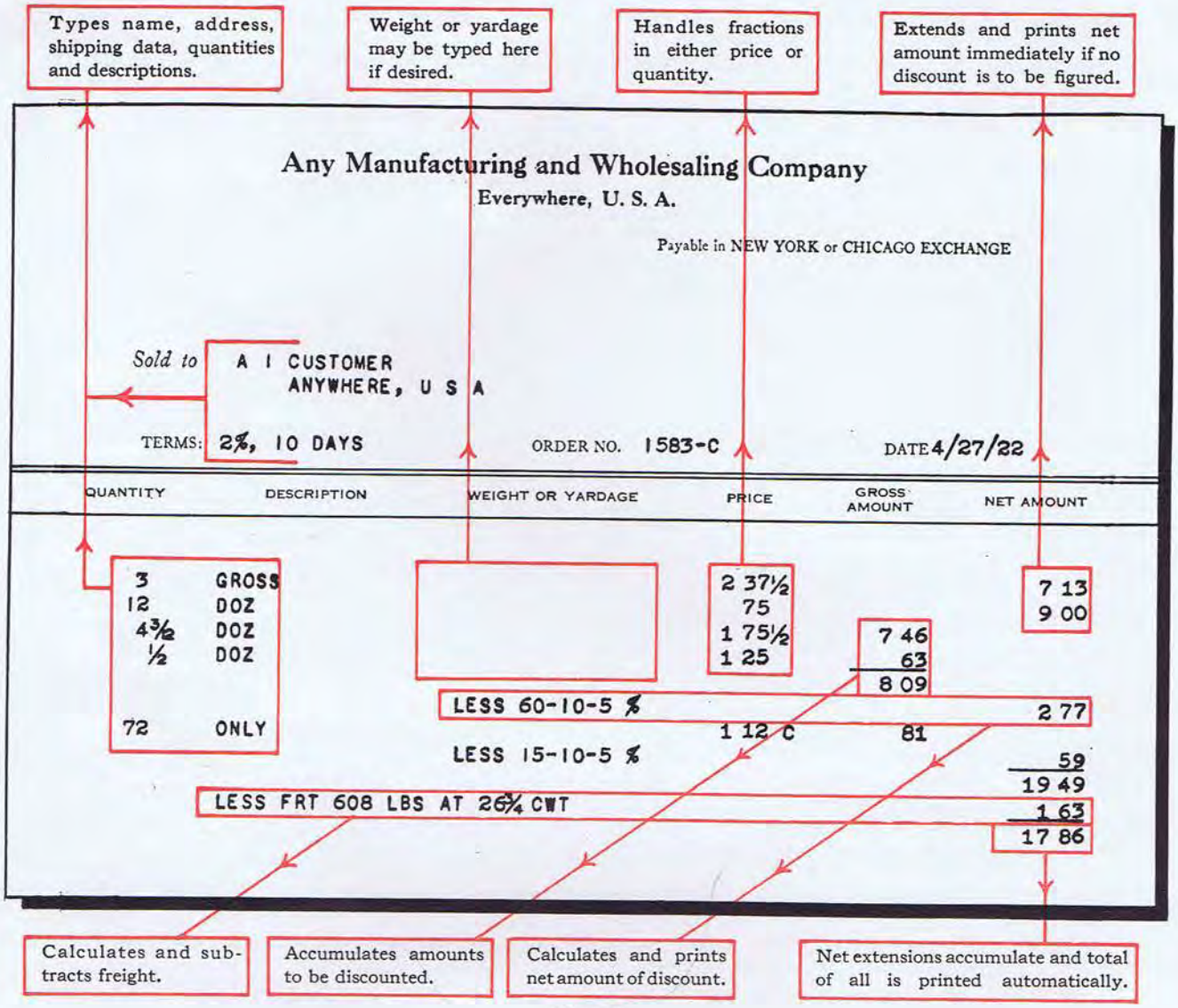

Figure 3

This invoice shows why the Burroughs Moon-Hopkins is the only complete billing machine. It is the only machine that handles all of the invoice in one operation, including all typing and all figuring.

Note that the name and address of the customer, the terms, order number, date and all other data are filled in with the typewriter section.

Quantity and description are also typed in the proper columns, as is weight or yardage if desired.

Price is written with the Red Keys and extended into the Multiplier at one operation. Thus the work of the typewriter is done by the machine.

We then multiply by quantity on the Black, or Multiplying Keys. This is done with the automatic multiplying mechanism. The answer is automatically printed by depression of one key the same as on any Burroughs Listing Machine.

Discounts are figured too and the net amount of each item printed. The various items are stored and the total of the bill is printed by depression of one key. Freight is figured and subtracted also.

All this is possible because, as outlined on the preceding page, the machine combines a typewriter, adding machines, subtracting machines and a multiplying machine.

Any type or kind of invoice can be handled and carbon copies made.

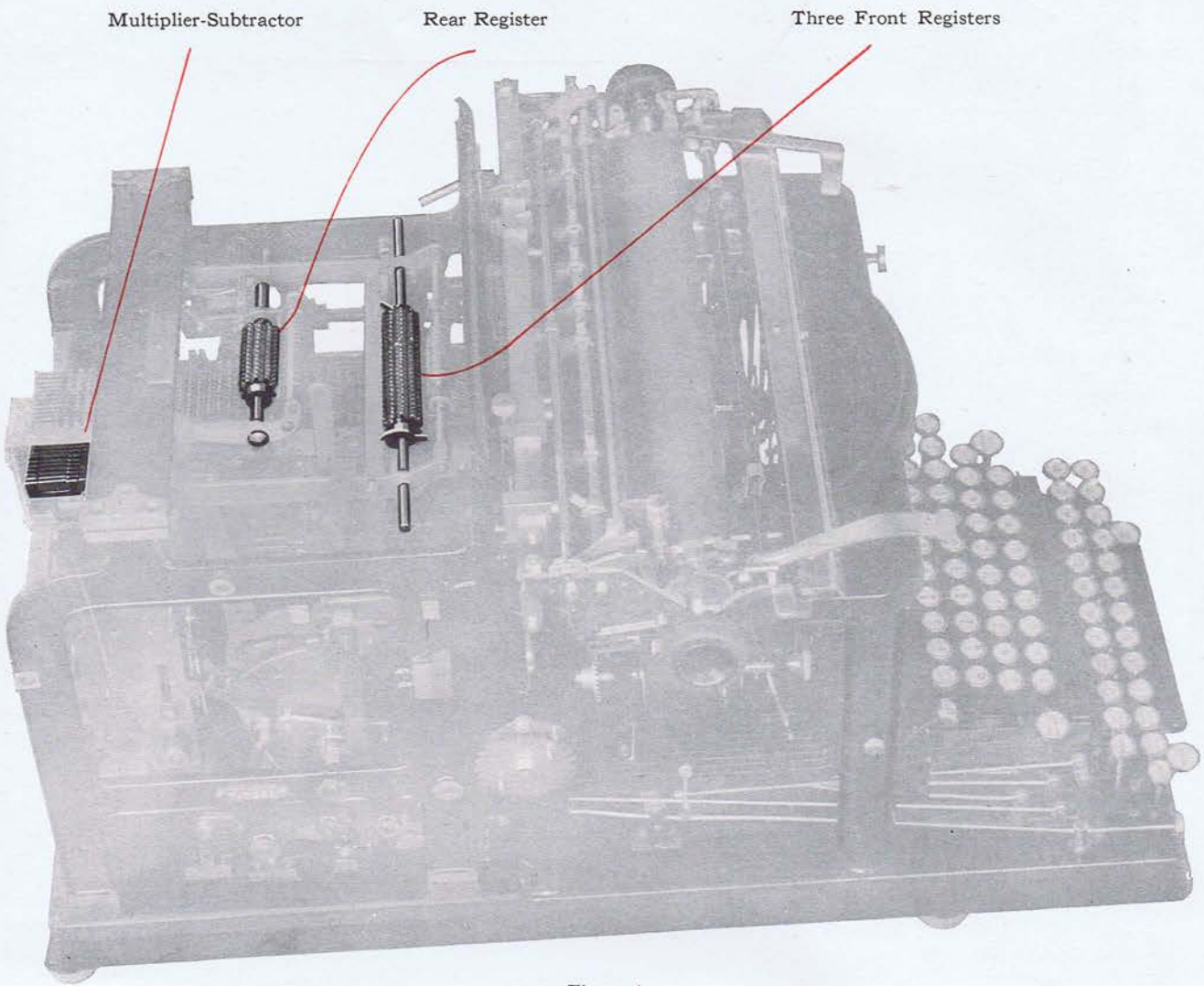

Figure 4

Location of Registers

The view shows the location of various sections that are controlled by the keyboards pointed out in Figure 2.

The typewriter typebars are directly under the carriage and also the type with which amounts are printed directly from the figuring mechanism by mere depression of a key, as on any Burroughs Listing Machine.

All figuring mechanism is back of the paper carriage. Just to the rear of the carriage are the three Front Registers. Just back of these (to the left, in this picture) is the Rear Register. At the rear of the machine (extreme left) you see the Multiplier-Subtractor.

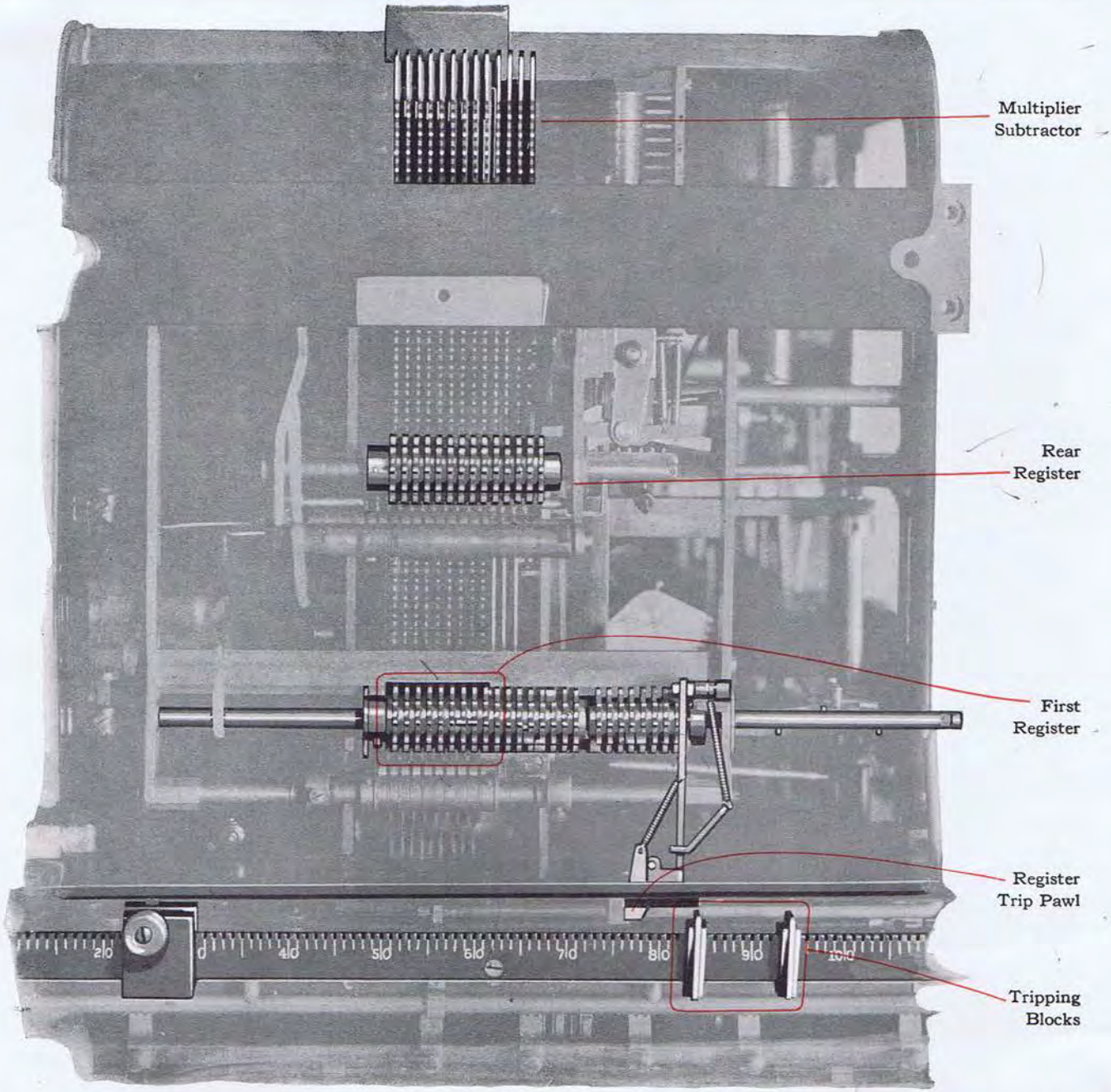

Figure 5

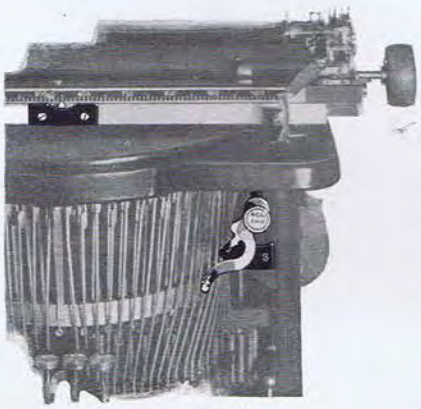

Figure 6

Figures 5, 7 and 9 show the position behind the paper carriage of the three Front Registers, Rear Register and Multiplier-Subtractor.

In Figure 5, the First Register is in active position. The carriage is positioned toward the right, as is indicated by the location of the two Tripping Blocks to the right of the Register Trip Pawl. The Register Indicator, Figure 6, indicates that the First Register is in active position.

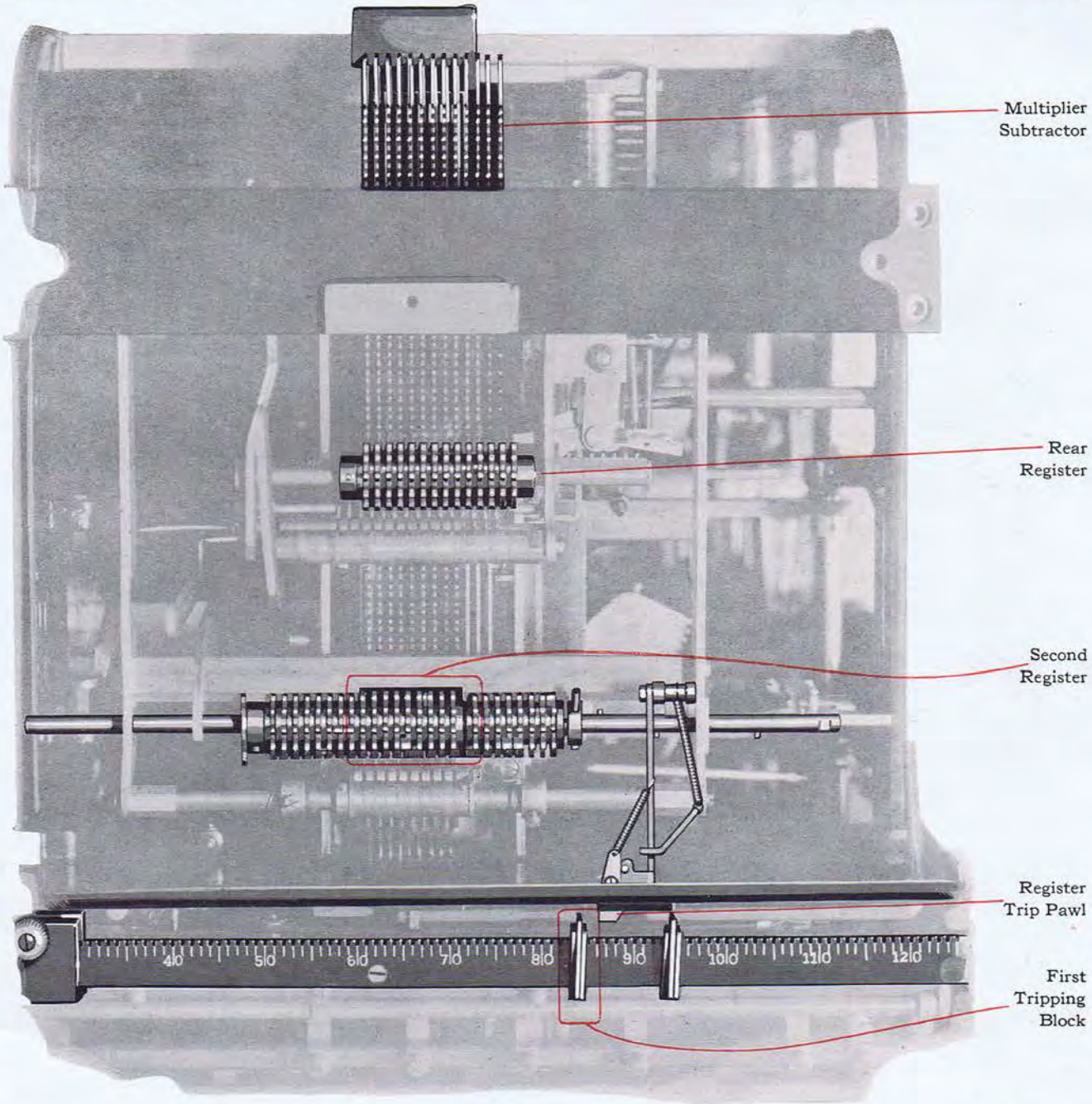

Figure 7

In Figure 7, the carriage has been tabulated toward the left, causing the first Tripping Block to strike the Register Trip Pawl. This caused all three Front Registers to slide to the left, bringing the Second Register into active position. This also caused the Register Indicator to trip as in Figure 8, showing that the Second Register is in position.

Note that the Rear Register and Multiplier-Subtractor do not slide. They are always in position to receive amounts.

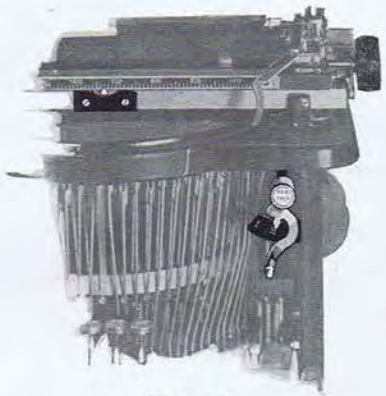

Figure 8

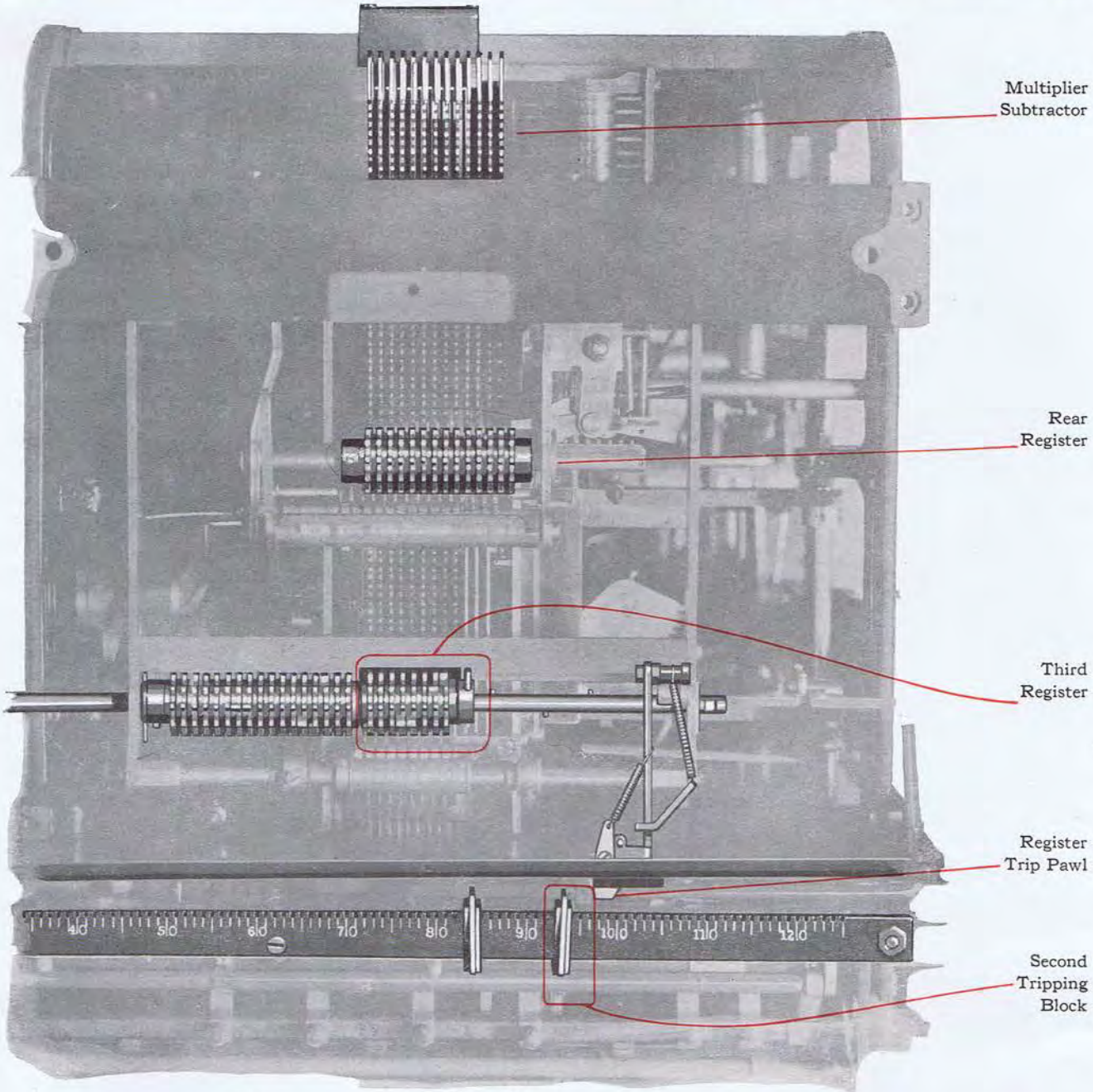

Figure 9

Figure 10

In Figure 9, the carriage has been tabulated even further to the left, causing the second Tripping Block to strike the Register Trip Pawl. This brought the Third Register into active position and tripped the Register Indicator to No. "3" (see Figure 10).

Figures are put into any one of the Front Registers, depending on which one is in active position, merely by depressing the Red Keys and touching the Motor Bar.

Both the Rear Register and Multiplier-Subtractor are in active position all the time. Figures may be put into them at any time or transferred into them at any time.

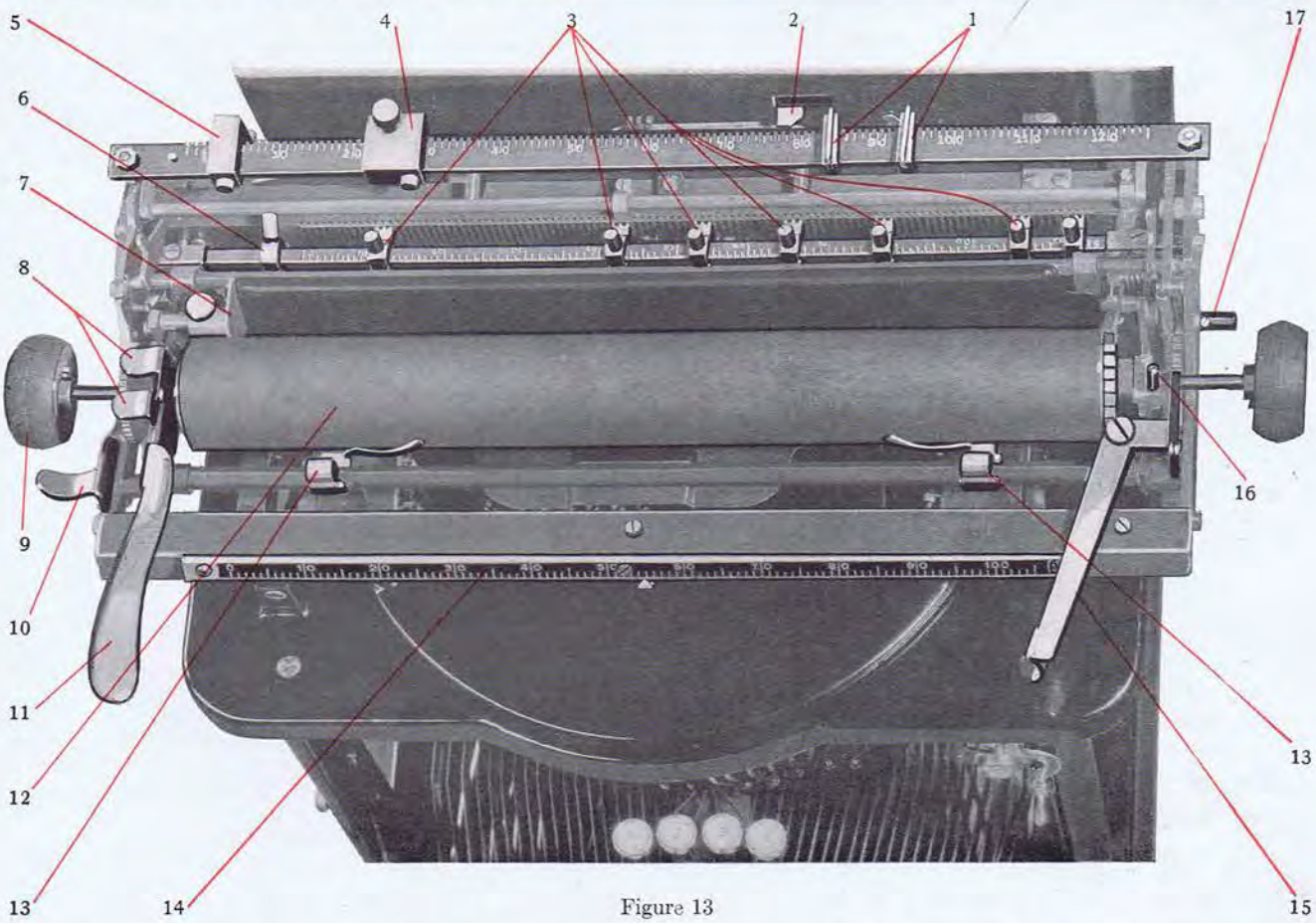

Figure 13

1. Tripping Blocks. When one of the Tripping Blocks strikes the Register Trip Pawl (2), as the carriage tabulates from right to left, the next Front Register (Second or Third) is automatically brought into active position.

2. Register Trip Pawl. See Tripping Blocks (1).

3. Tabulator Stops. These can be set to bring the carriage to a stop at any point when it is tabulated with the Tabulate Key.

4. Marginal Release Block. Can be used to stop the carriage at the left hand margin. Depression of the Margin Release Key permits the carriage to pass the Marginal Release Block until stopped by the Margin Block (5). It is inoperative when knurled button is raised and locked in this position by a half-turn.

5. Margin Block. Is generally used in invoicing to stop the carriage at the left hand margin.

6. Tabulator Stop lowered (not in use).

7. Paper Guide. When sheets of paper are inserted, they should rest against the Paper Guide. This makes it easy to get all forms into the same position. It is adjustable to the right and left.

8. Paper Release. Depression of the Paper Release releases the pressure rolls so that sheets can be moved about in the carriage or adjusted.

9. Variable Line Spacer. By pulling out the Platen Twirler, the Platen may be turned a fraction of a space.

10. Carriage Release. Permits free movement of the carriage, by hand, either to the right or left.

11. Handle for raising or lowering the carriage.

12. Platen. Provides a writing surface in back of the paper.

13. Paper Finger. Holds the paper smoothly against the Platen. Can be moved either to the right or left.

14. Black Scale. Tells the operator what point on the paper is in printing position. It corresponds to the scale under the Platen.

15. Carriage Handle. Can be used to return the carriage to the right by hand instead of with the Carriage Return Key. At the same time it turns the Platen either one or two spaces, according to the position of the typewriter space control (16).

16. Typewriter Space Control. When pushed to the rear, as in the above picture, the Platen turns up one space when the carriage is returned to the right with the Carriage Handle (15). When pulled to the front, the Platen turns up two spaces.

17. Adding Machine Space Control. The position of this control determines whether the Platen spaces up one or two spaces when the adding machine is operated by touching the Motor Bar. If it is pushed in, as in the above picture, the Platen turns up one space. When it is pulled out and locked in this position by a half-turn, the Platen turns up two spaces. However, the Vertical Adding Machine Space Lever (see Figure 12) must be turned up in order to have this feature operate.

Functions of Various Keys

Black Keys.—When a number is to be multiplied, the Black Keys receive the multiplier. Depress each key once, which operates the motor and performs the multiplication. Then depress the Final Product Key and Motor Bar to print the answer. Each Black Key, except the "0" and "1," automatically actuates the Multiplier twice; the "0" and "1" keys only once. (To see how the number to be multiplied is handled, see Extend Key.)

Carriage Return Key.—Depressing this key causes the carriage to return to the right. The carriage spaces up automatically when returning.

Decimal Discount Key (see Point-off Key also).—Points off as many places as you have multiplied by. It is always used when multiplying by a discount or decimal which does not have a whole number preceding the decimal point. It is always used when multiplying by a freight rate not exceeding 99c per hundred pounds.

Eliminating Key (marked "E").—This key permits a number to be printed but not added. Register the figures on the Red Keys, hold down the "E" Key and Rear Register Key evenly with the forefinger, depress the Motor Bar.

Error Key.—Is used to restore any Result Key (those at the left of Red Keys) to its normal position and to correct an error made on the Red Keys.

Extend Key.—Sets up in the Multiplier-Subtractor a number registered on the Red Keys. After writing the number on the Red Keys, depress the Extend Key (do not hold down) and touch the Motor Bar. The number is then multiplied by the black keys.

The "Add or Non-add on Extend" feature makes it possible to accumulate amounts in any active Front Register as they are extended into the Multiplier-Subtractor. This feature is located on the base of the machine below the left ribbon spool.

By depressing the Front Total and Extend Keys together (do not hold down), the number in the active Front Register is printed and extended into the Multiplier-Subtractor.

Final Product Key.—Clears the Multiplier-Subtractor and Rear Register, prints the figure that is in the latter and transfers it to the Front Register in active position. (See First Product Key.)

First Product Key.—Is a total key for the Rear Register. It does not transfer the product to the Front Registers and does not clear the Multiplier-Subtractor. It is used to correct an error made in multiplying by the wrong Multiplying Key, and to show the amount of the discount.

The optional feature, "Add on First Product," causes this key to clear the Rear Register and transfer the product to the active Front Register without disturbing the amount in the Multiplier-Subtractor. This feature is used in such work as pro-rating where the accumulation of successive multiplications of the same amount is required.

Fraction—Rear Register Key (see Rear Register Key).—This key has two distinct and separate uses. Here we will consider its use as a Fraction Key. For its use as a Rear Register Key see description of that key.

To print and add a fraction, hold down the Fraction Key, then strike the key representing the fraction, release the Fraction Key and touch the Motor Bar. This prints the fraction and adds it in the First Front Register. Fractions may be handled only in the First Front Register or Rear Register when the Register Indicator is in No. 1 position.

To print fractions and add them in the Rear Register, continue to hold down the Fraction Key while the Motor Bar is operated. It then acts as a Rear Register Key and introduces the fraction into the Rear Register.

Front Total Key.—Is a total key for any Front Register in active position. Depress this key and touch the Motor Bar, which prints the amount and clears the register. If held down while the Motor Bar is depressed and then restored with the Error Key, it acts

Alphabetically Arranged

as a sub-total key, printing the amount but not clearing the register.

By depressing the Front Total and Extend Keys together and touching the Motor Bar, the amount is cleared out of the active Front Register, printed and extended into the Multiplier-Subtractor.

By depressing the Front Total Key, holding down the Rear Register Key and touching the Motor Bar, the amount is cleared out of the active Front Register, printed and transferred into the Rear Register.

Full Cent Key.—Should always be depressed when there is a fraction in the quantity or price or when multiplying by a discount and printing the product in the gross or net column. If the fraction in the machine amounts to five mills or more, depression of the Full Cent Key automatically adds enough mills to cause the full cent to be printed in the answer. If the fraction in the machine amounts to less than five mills, the Full Cent Key automatically eliminates it from the answer.

Line Key.—Striking this key causes a line five spaces long to be printed wherever desired, as at the foot of a column.

Margin Release Key.—When it is desired to print to the left of the margin, depression of the Margin Release Key releases the Margin Release Block and permits the carriage to return further to the right until stopped by the Margin Block (see Figure 13).

Multiplying Keys (see Black Keys).

Non-print Key (see Shift Non-print Key).

Point-off Key (see Decimal Discount Key also).—Each depression of this key points off one place. As its name would indicate, each depression eliminates the right-hand figure of the product in the machine and moves the decimal point one place to the left.

Rear Register Key (see Fraction-Rear Register Key).—This key introduces amounts into the Rear Register. Write an amount on the Red Keys, then hold down the Rear Register Key and touch the Motor Bar. This will cause the amount to be printed and added in the Rear Register.

By depressing the Front Total Key, holding down the Rear Register Key and touching the Motor Bar, an amount can be transferred from any Front Register in active position to the Rear Register.

Red Keys.—By these keys amounts are introduced into any section of the machine—Rear Register, Front Registers or Multiplier-Subtractor—and are printed.

Register Indicator.—The position of the arrow indicates whether the First, Second or Third Front Register is in active position. The Second or Third Registers may be tripped into position by pressing the Register Trip Button, or the First or Second Registers may be drawn into position by moving the indicator arm to the left.

Ribbon Shift Key.—Often it is desired to print an amount, such as a total, in red. Pushing this key brings the red part of the ribbon into position. It can be locked into position by the Ribbon Shift Lock Button beside it on the leg of the typewriter.

Shift Non-print Key.—Holding down this key shifts the carriage so that characters in the upper row on the typewriter keys may be printed.

Or, if figures are being handled in the adding section, holding down the Shift Non-print Key permits them to be added and not printed.

Subtract Key.—By means of this key direct subtraction is performed. Introduce the larger amount into the Rear Register by writing it on the Red Keys, holding down the Rear Register Key and touching the Motor Bar; introduce the number to be subtracted into the Multiplier-Subtractor with the Red Keys, Extend Key and Motor Bar; push the Subtract Key and touch the Motor Bar; depress First and Final Products Keys, touch Motor Bar, which prints the difference.

Tabulate Key.—Holding down this key causes the carriage to tabulate to the next printing position.

Putting Paper in Carriage

Putting the paper into the carriage of the Burroughs is done the same way as with any typewriter or adding machine. Merely drop the paper into the carriage next to the paper guide, turn the platen to draw the paper into position and adjust the paper guides (see Figure 14).

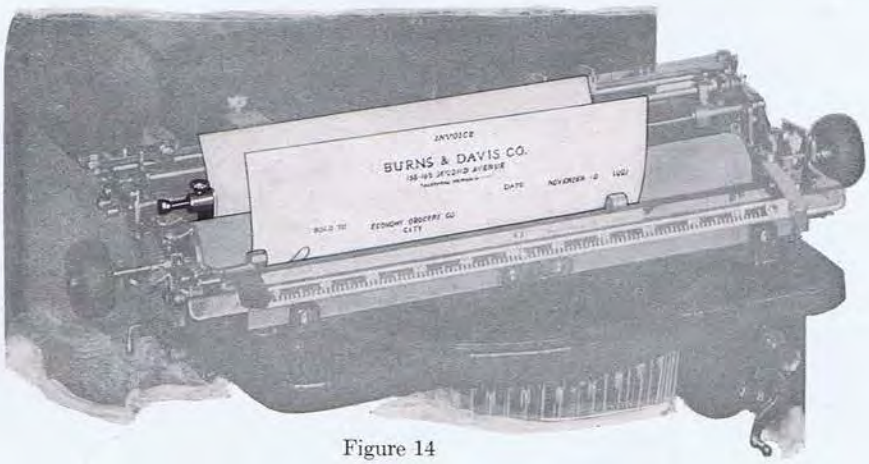

Figure 14

Figure 15

Using Roll Paper

When the Burroughs is used merely for listing and adding a column of figures, it is best to use the roll of paper provided for that purpose.

A roll is put on the reel as shown in Figure 15. Merely insert the rod through the wooden core and seat the little wheel in the groove by depressing the ratchet with the thumb.

Putting Roll in Holder

To put the roll into the holder, let the reel down into the two deep notches. This is done by pushing both knurled knobs in toward each other and then releasing them after the reel has entered the notches. Figure 16 illustrates this.

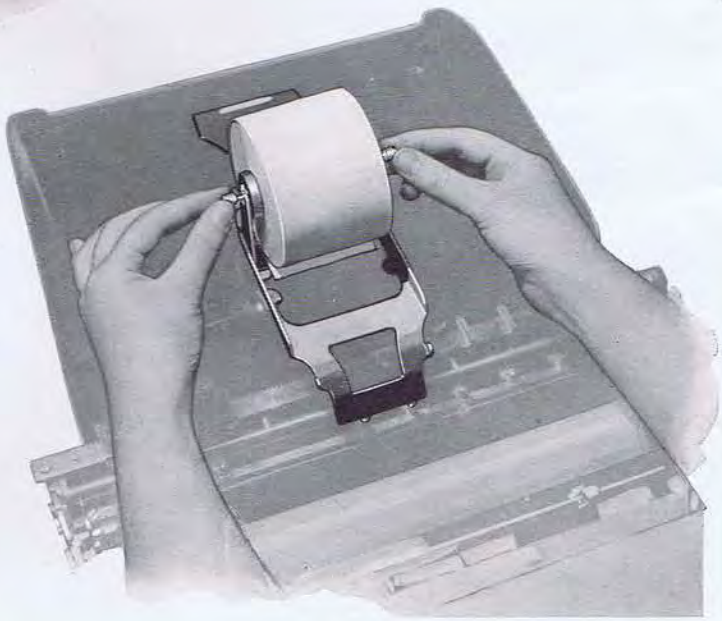

Figure 16

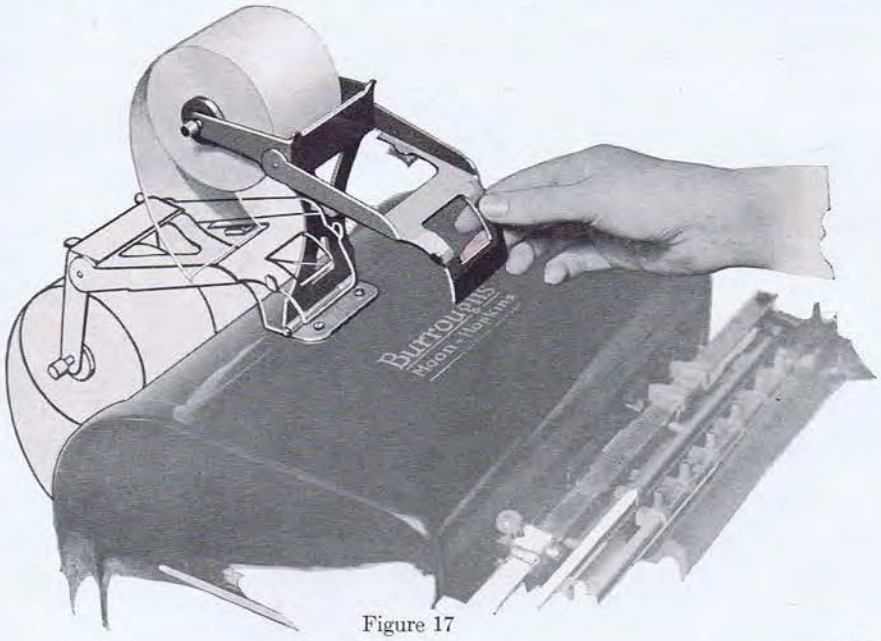

Figure 17

Bringing Roll Into Position

When the roll of paper is not in use, it rests at the back of the machine, completely out of the way. To bring it into position for work, take hold of the upper part and pull forward and upward, as in Figure 17.

Inserting Strip in Carriage

Put the paper guides in proper position and insert the paper into the carriage the same as on an adding machine. This is done by inserting the paper behind the platen and turning the platen twirlers.

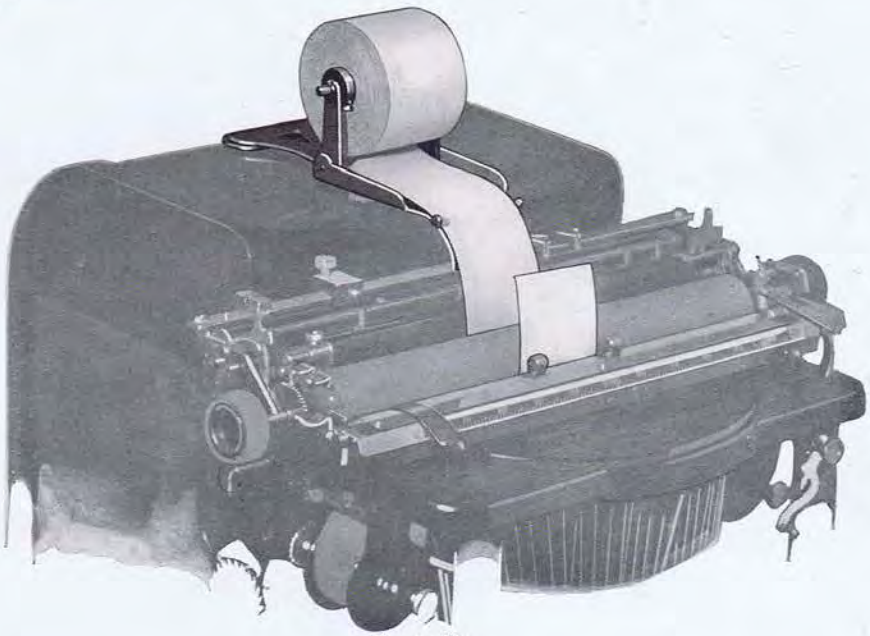

Figure 18

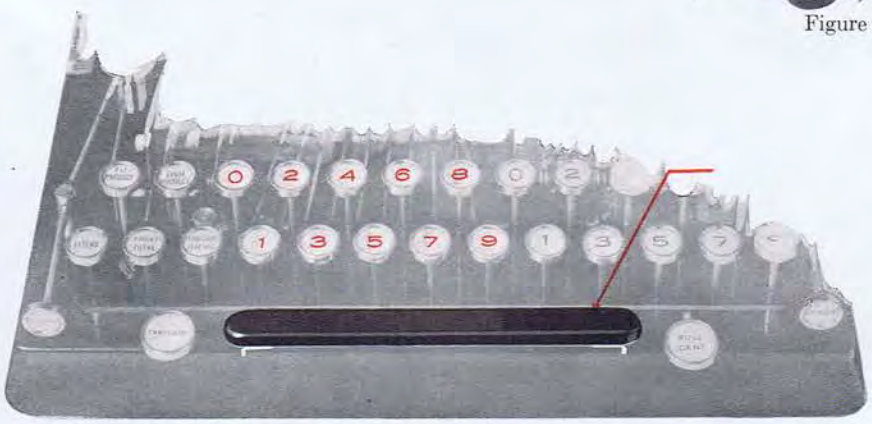

Figure 19

Use of Motor Bar

After an amount has been registered on the Red Keys or one of the Result Keys has been depressed (the five keys just to the left of the Red Keys), depression of the Motor Bar causes the amount to be printed and added, or causes the Result Key to function.

Tripping the Front Registers by Hand

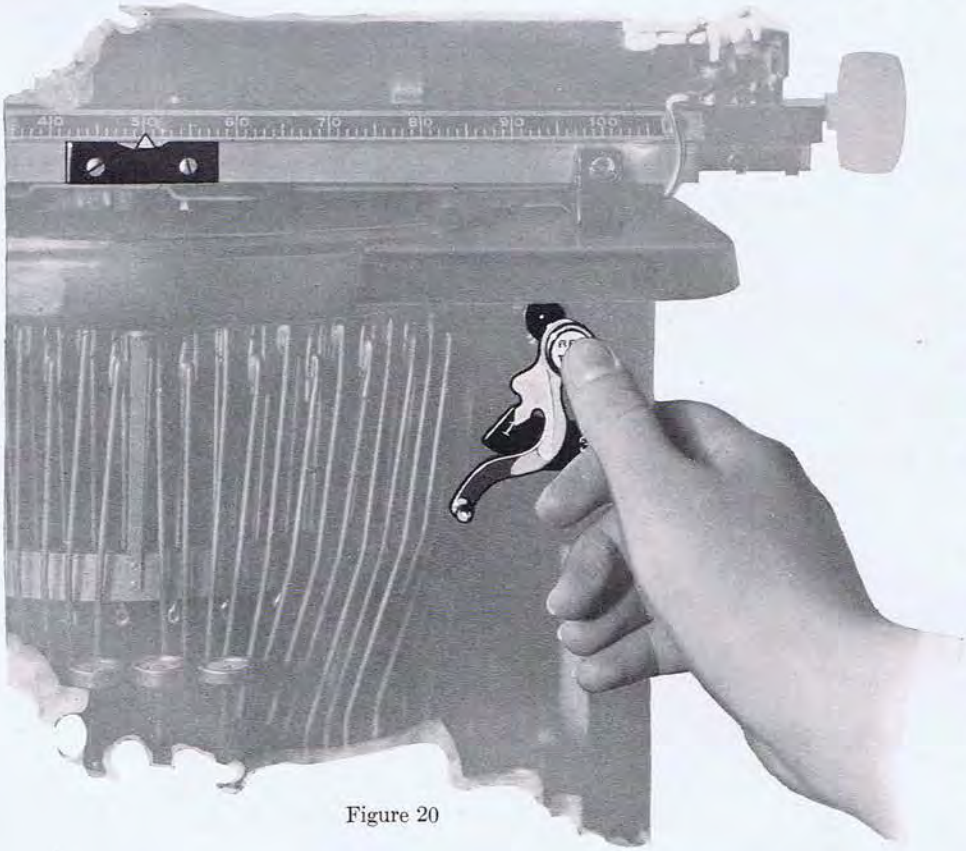

Figure 20

The Rear Register is always in position to print and add figures, but only one of the Front Registers at a time can be in active position where amounts can be introduced into it. These registers can be controlled by the Register Trip Button and Register Trip Indicator shown in Figures 20 and 21.

Move the carriage to the left until the Register Indicator moves to "3," which indicates that the Third Register is in active position. Without moving the carriage, the Second or First Register can be brought into active position by taking hold of the knob on the Register Trip Indicator and pulling it to the left.

When the First Register is in position, the Second or Third can be brought into position by depressing the Register Trip Button. This latter is illustrated by Figures 20 and 21, showing the Register Trip Indicator at No. 2 after the button has been pushed.

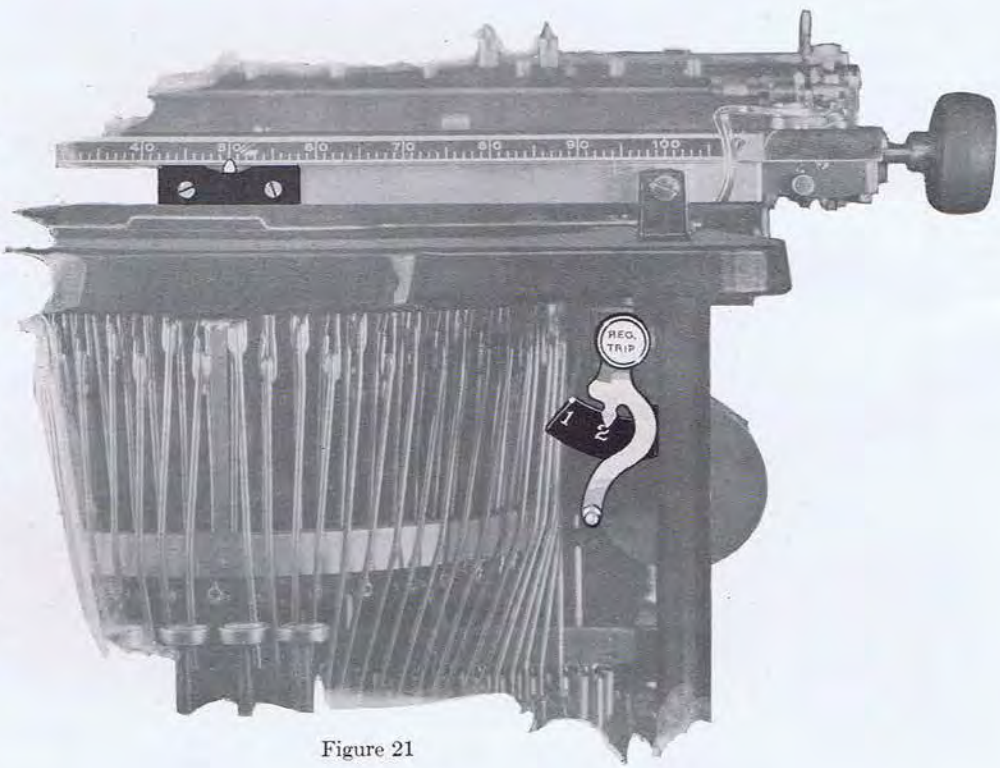

Figure 21

Tripping Front Registers Automatically

The Front Registers can be made to trip automatically as the carriage tabulates across, at whatever point is desired.

Suppose that it is desired to have the Second Register in active position when the carriage is tabulated to "67" on the black scale. Move the carriage so that the pointer is opposite "67" on the black scale at the front of the carriage,

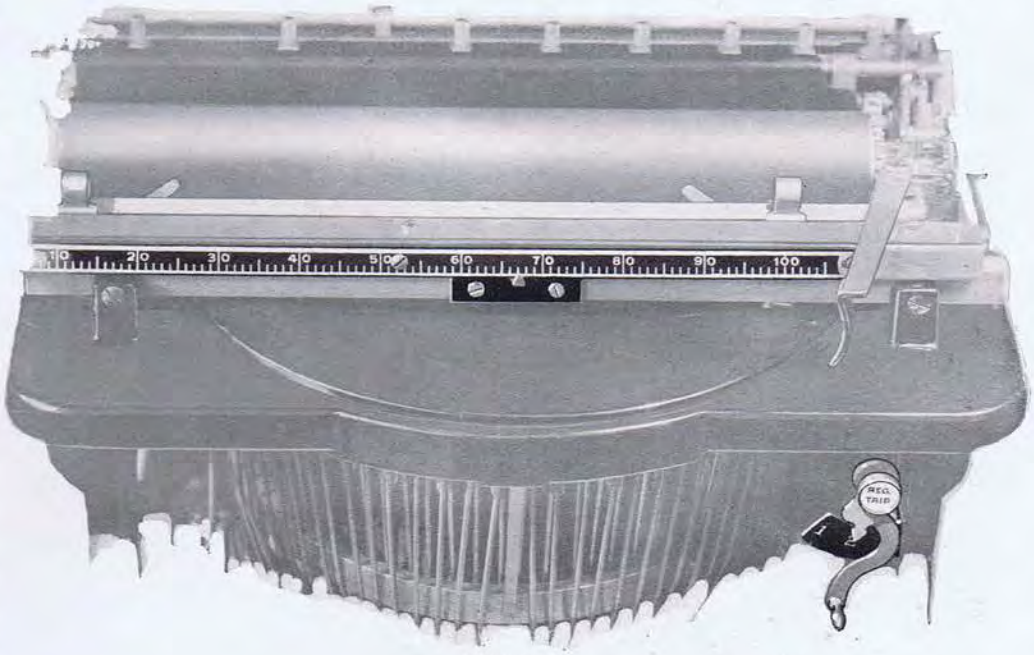

Figure 22

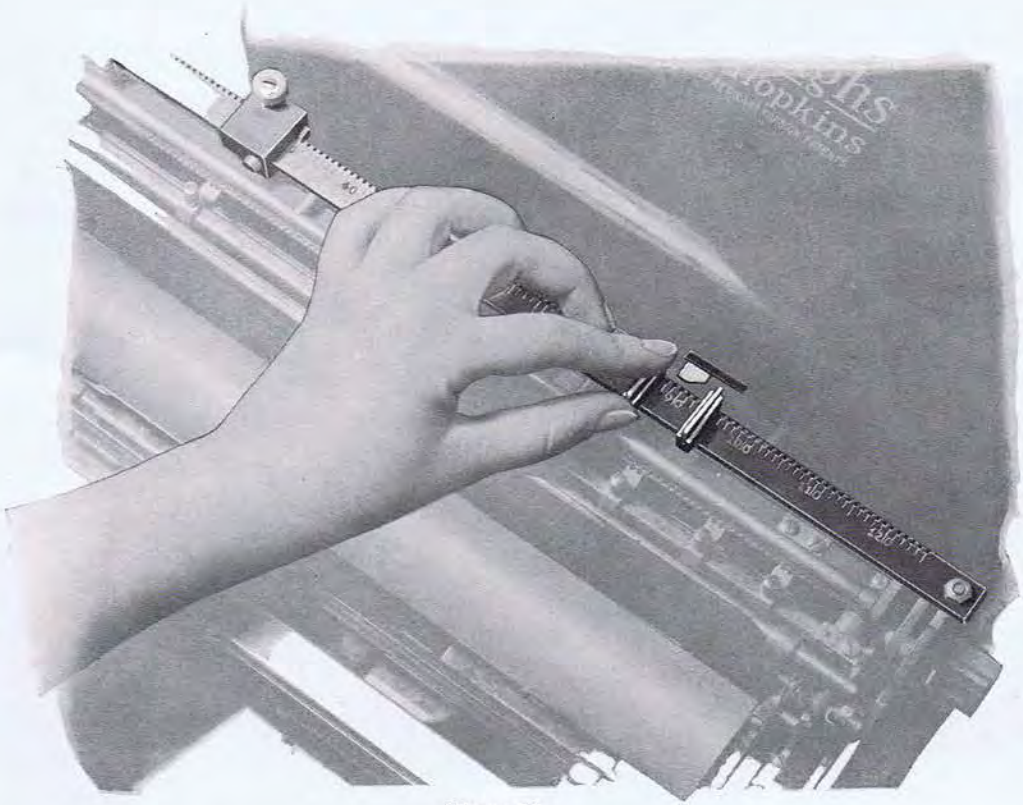

Figure 23

as shown in Figure 22. Then (see Figure 23) move the Tripping Block to a position about three notches to the left of the Register Trip Pawl.

Thus when the carriage is tabulated to "67," the Tripping Block will strike the Register Trip Pawl just before the carriage comes to rest, causing the next register to come into active position.

Operating the Burroughs Moon-Hopkins Billing Machine

Clearing the Machine

Figure 24

Before starting to use the machine, it is best to make sure some figures have not been left in it from a previous operation. To do this it is necessary to clear the Multiplier-Subtractor, Rear Register and the three Front Registers.

Move the carriage to the extreme left and bring the First Register into active position by pulling the Register Trip Indicator over to the left until it points to No. 1. Raise the carriage so that nothing can print on the paper or platen.

Then depress the Final Product Key and touch the Motor Bar. This clears the Multiplier-Subtractor and Rear Register, transferring any figures to the First Front Register. Depress the Front Total Key and Motor Bar, clearing the First Register. Trip the Second Register into position by pushing the Register Trip Button. Depress the Front Total Key and Motor Bar; trip the Third Register into position; depress the Front Total Key and Motor Bar.

All sections of the machine are now clear and the new work may be started.

Single-Column Addition

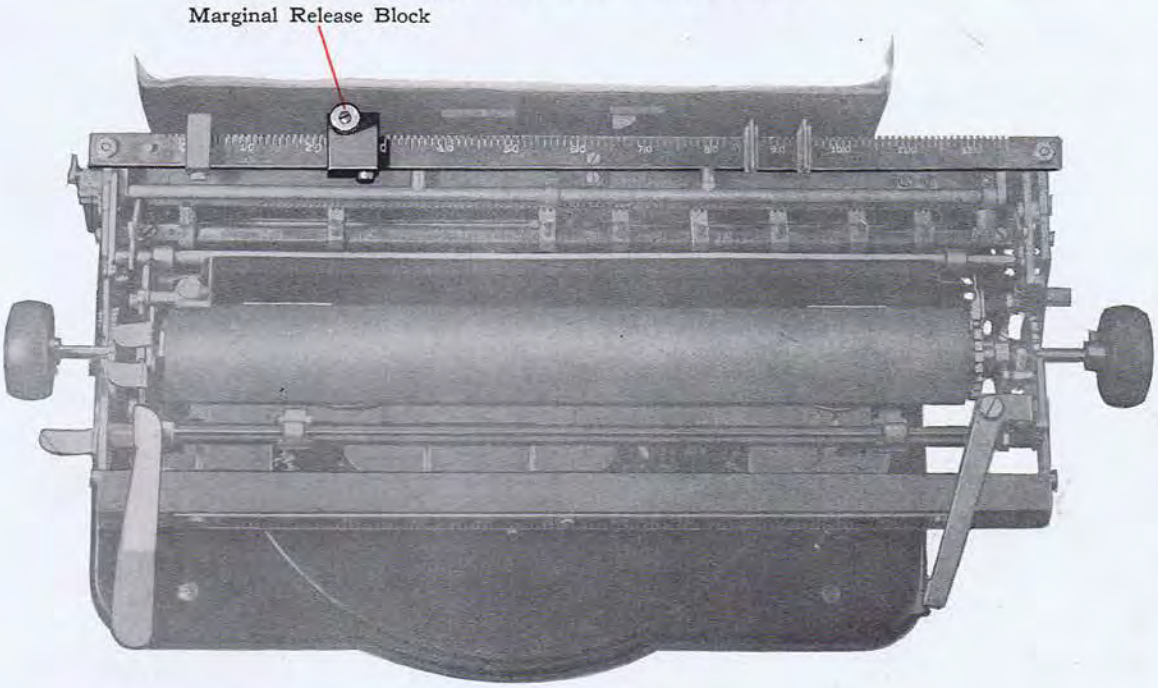

Figure 25

Set Marginal Release Block at "30" as in Figure 25, gauging on the right side.

Turn up the Vertical Adding Machine Space Lever under the left end of the carriage and back of the ribbon spool (see Figure 12). This causes the paper to space up every time the motor is operated. When it is turned down, the paper fails to space up.

Note: Earlier models had a different flat scale. Starting from the left at "0," it numbered up to "10," down to "0" and then up to "105." On such machines, in order to have the carriage stop at "26," the Marginal Release Block must be set at the second "10" from left.

Operating Instructions

Clear the machine.

Move the carriage to the right until stopped by Marginal Release Block at "26" on the Black Scale, making sure that the Register Trip Indicator points to No. 1.

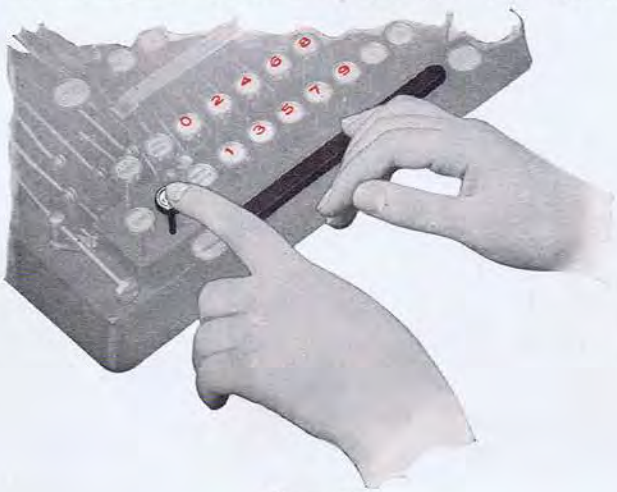

Figure 26

Register each amount on the Red Keys, then touch the Motor Bar, which causes the figures to add and print.

When the last amount is printed, strike the Line Key. Turn up the platen one space.

Then depress the Front Total Key and touch the Motor Bar, which prints the total and clears the machine.

Note that the machine automatically spaces between dollars and cents.

EXAMPLE

246 00
24 87
13 65
359 77
87 66
354 44
675 66
8765 55
67 88
97 55
10693 03

Figure 27

Duplex Addition in One Column

Figure 28

The set-up of Stops and Blocks is the same as for single column addition.

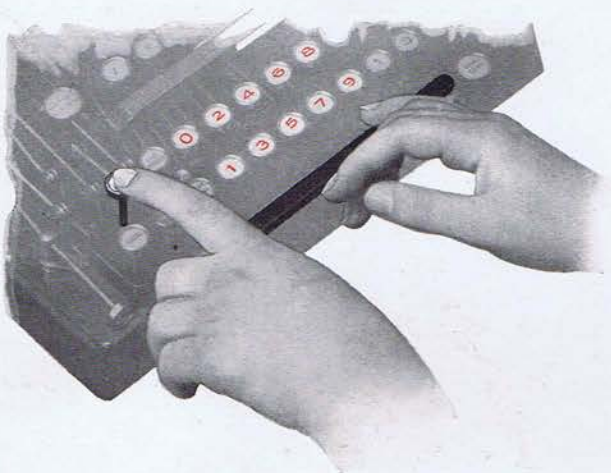

Figure 29

Operating Instructions

Clear the machine.

List the first set of figures as in single column addition. To take total, depress Front Total Key, hold down Rear Register Key and touch Motor Bar. Run the second set of figures the same way. This throws the total of both sets into the Rear Register.

To print the grand total, merely depress the First Product Key and touch the Motor Bar, which also clears the machine.

EXAMPLE

134 00
2465 00
13 87
246 75
3566 00
6425 62
8765 00
125 75
135 65
42 75
2675 89
11745 04
18170 66

Figure 30

Duplex Addition in Two Columns

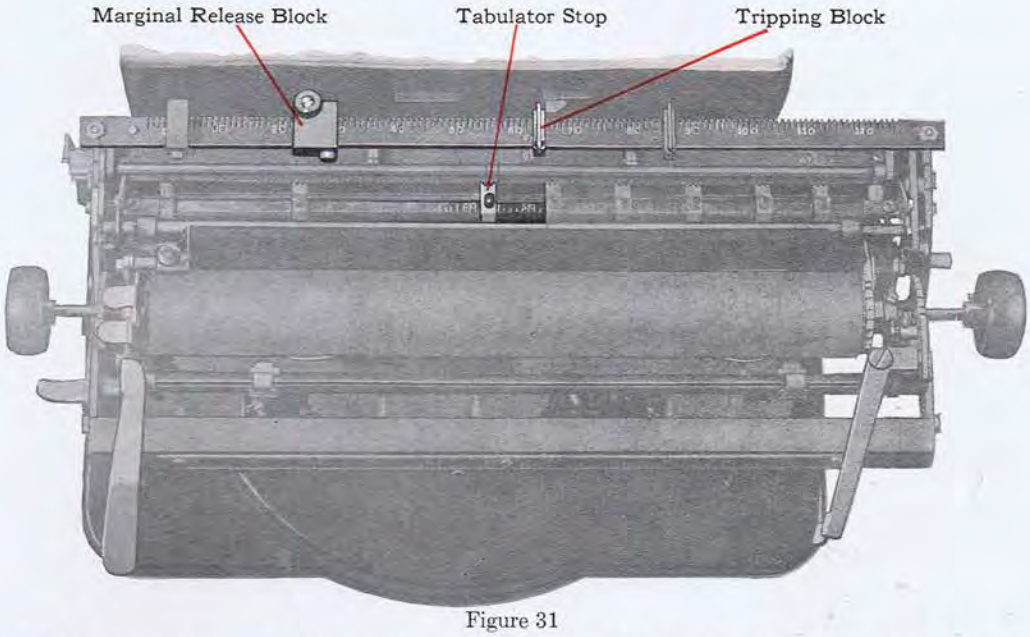

Figure 31

Leave the Marginal Release Block at "30." Set a Tabulator Stop at "44," and a Tripping Block just to the left of the Register Trip Pawl as directed on page 19. Thus when the carriage is tabulated to "44", the Second Register will automatically trip into active position to receive the second set of figures. (Register Indicator must be at No. 2.) The first set is printed at "26." Turn down the Vertical Adding Machine Space Lever.

Operating Instructions

Clear the machine.

Print and add the first set of figures in the First Register, the carriage being at "26" (on the black scale at the front of the carriage) where it is stopped by the Marginal Release Block. The second set is printed with the Second Register at "44", where the carriage is stopped by the Tabulator Stop.

After printing the first amount of the first set (89 00), tabulate to "44" and print 90 00. Touch the Carriage Return Key, which returns the carriage to the first column and spaces up the paper. Proceed the same way with the rest of the amounts.

Print the total of the first column and then of the second, transferring each to the Rear Register with the Front Total Key, Rear Register Key and Motor Bar.

To print the grand total, tabulate over to the right, depress the First Product Key and touch the Motor Bar.

EXAMPLE

90 00		89 00
1642 39		427 19
832 76		7587 94
276 50		75 23
6535 28		1296 35
9376 93	18852 64	9475 71

Figure 32

Three-Column Addition

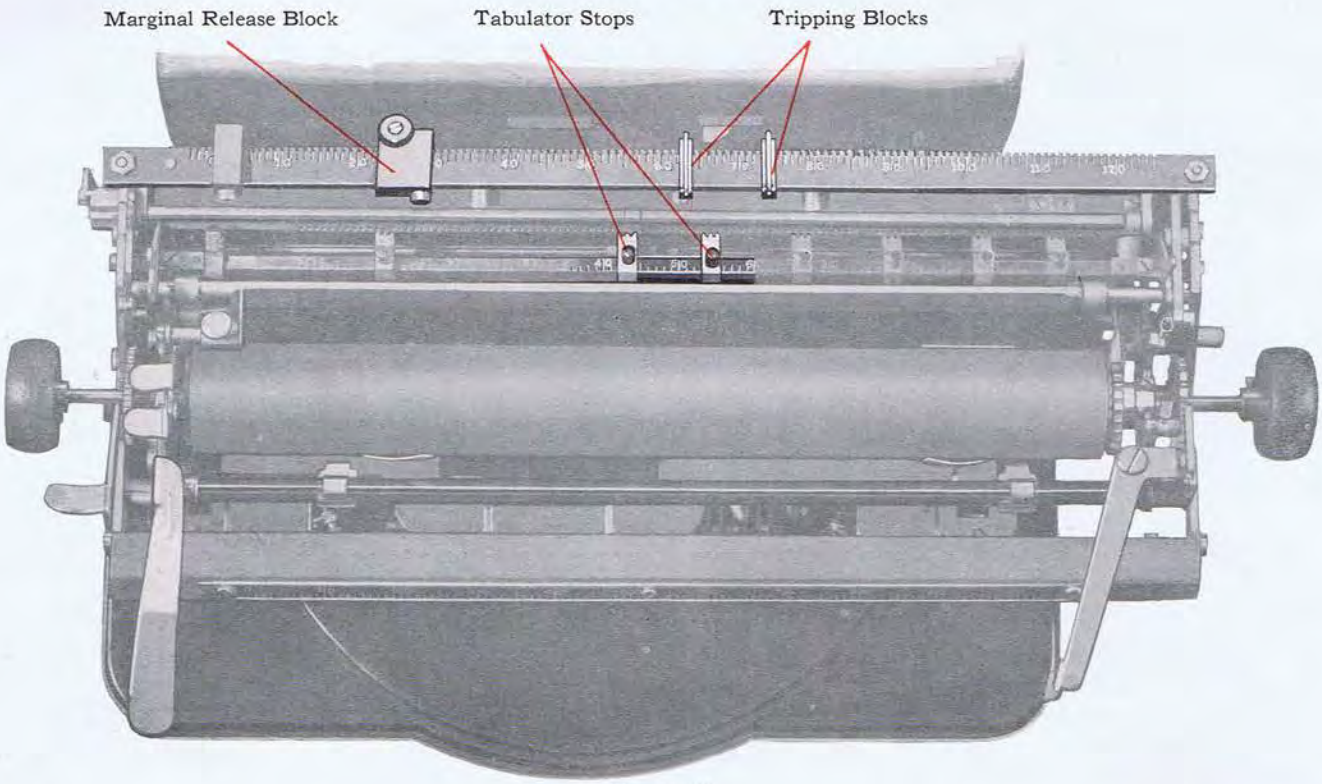

Figure 33

Leave same set-up as on previous page but also set a Tabulator Stop at "55" and a Tripping Block so that the Third Front Register will come into active position at "55." This set-up will automatically bring the First, Second and Third Registers into active position at the proper places for handling three separate sets of figures.

Operating Instructions

Clear the machine.

Procedure is the same as for the two-column addition shown on the previous page except that three sets of figures are handled instead of two. Column totals and the grand total are obtained in the same way.

EXAMPLE

247 58	362 78	408 25	
723 64	438 52	197 50	
482 75	634 27	546 43	
849 27	265 50	357 28	
496 31	923 75	876 40	
673 95	342 96	827 45	
3473 50	2967 78	3213 31	9654 59

Figure 34

Four-Column Addition

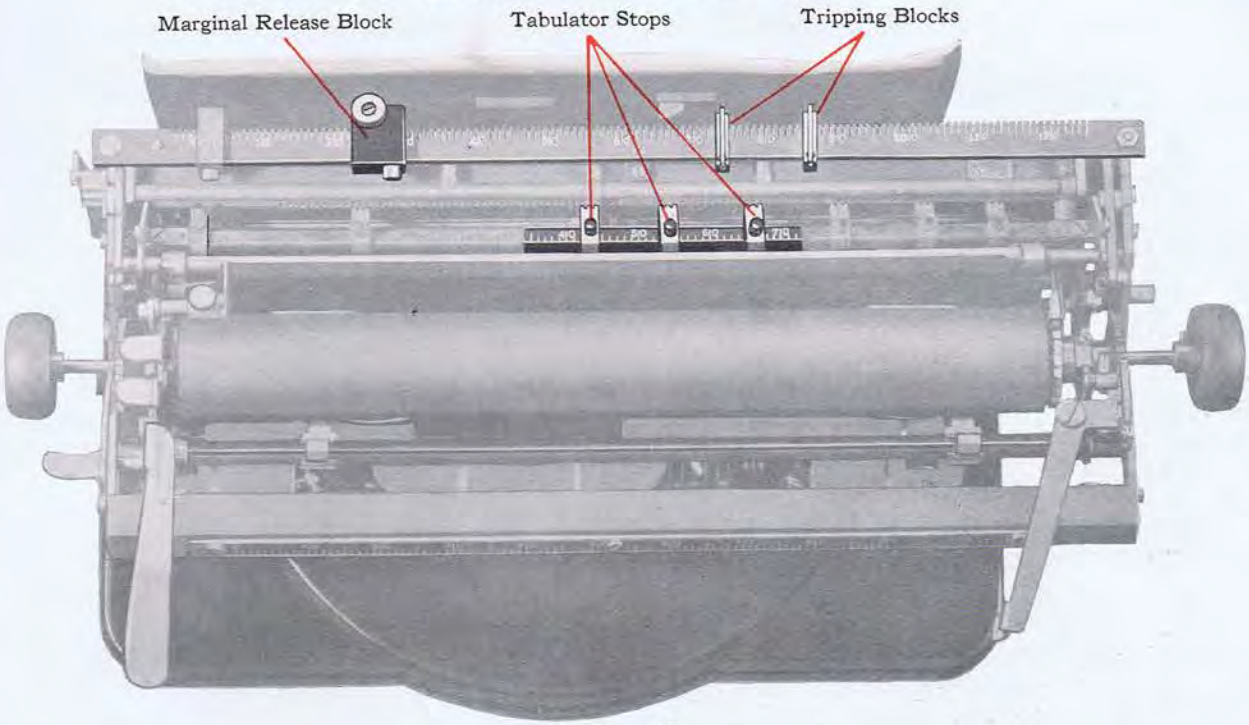

Figure 35

Leave Marginal Release Block at "30" and the two Tabulator Stops at "44" and "55," but set another Tabulator Stop at "67." Also, set the two Tripping Blocks so the Second Register comes into active position at "55" and the Third at "67."

Operating Instructions

Clear the machine.

Introduce amounts of the first column into the Rear Register by holding down Rear Register Key while machine is operated; tabulate to second column and use First Register; use Second Register for third column and Third Register for the fourth. A touch on the Carriage Return Key will return the carriage.

To total the first column (which was added with the Rear Register), *hold down* the First Product Key and touch the Motor Bar, which causes the amount to remain in the Rear Register. To restore the First Product Key, depress the Error Key.

Total the other columns by tabulating to them, depressing the Front Total Key, holding down the Rear Register Key and touching the Motor Bar. This transfers the totals to the Rear Register and accumulates them there with the figures already in it.

To print the grand total, depress the First Product Key and touch the Motor Bar.

EXAMPLE

362 45	176 21	278 64	586 54	
728 61	943 65	764 92	372 47	
506 85	314 96	274 80	628 96	
297 46	487 59	573 28	659 75	
491 25	355 00	206 04	724 83	
2386 62	2277 41	2097 68	2972 55	9734 26

Figure 36

Lineal Addition in Five Columns

Showing Totals of Each Line and Grand Total of All

Leaving the Marginal Release Block and Tabulator Stops set as for four-column addition, set Tabulator Stops at "79" and "91," and move the Tripping Blocks to the left until they are against the Marginal Release Block. They are not used for lineal addition.

Operating Instructions

Clear the machine.

Move the carriage to the right until stopped by the Marginal Release Block. Then print the amounts in the first line, tabulating from column to column.

When the last amount has been printed and added at "79," tabulate to the total column at "91" and transfer the figures in the Front Register to the Rear Register by depressing the Front Total Key, holding down the Rear Register Key and touching the Motor Bar.

Touch the Carriage Return Key to return the carriage to the first column and complete the other lines in the same way, transferring each total to the Rear Register.

To print the grand total at the foot of the total column, space up, depress the First Product Key and touch the Motor Bar.

EXAMPLE

408 25	247 58	362 78	218 19	190 00	1426 80
197 50	732 64	438 52	100 65	97 46	1566 77
546 43	482 75	634 27	35 00	100 00	1798 45
357 28	849 27	265 60	108 85	19 52	1600 52
876 40	496 31	923 75	145 68	374 83	2816 97
827 45	673 95	342 96	627 09	16 23	2487 68
					11697 19

Figure 37

Subtraction

Turn up Vertical Adding Machine Space Lever. Return carriage to the right until stopped by Marginal Release Block.

Operating Instructions

Clear the machine.

(1) Introduce larger amount into Rear Register with Red Keys, Rear Register Key, Motor Bar (see Figure 38).

(2) Introduce smaller amount into Multiplier-Subtractor with Red Keys, Extend Key, Motor Bar.

(3) Push Subtract Key, Motor Bar.

(4) Depress First and Final Product Keys, Motor Bar, which prints the difference of the two amounts and clears the machine.

The numbers of the above paragraphs refer to the numbers shown in Figure 38.

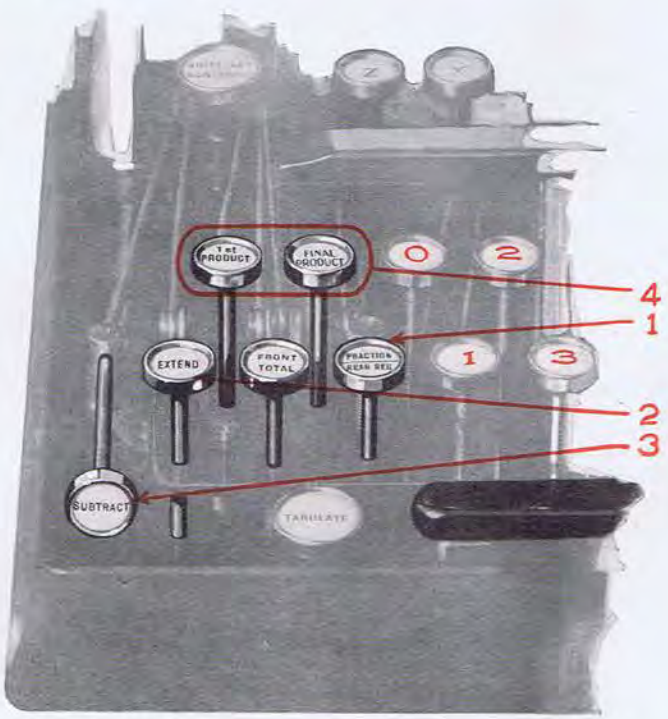

Figure 38

EXAMPLE

Numbers to the left of the example refer to the numbers of operations in Figure 38.

(1)	246 85	Hold down Rear Register Key, touch Motor Bar.
(2)	97 65	Depress Extend Key, touch Motor Bar.
(3 and 4)	149 20	(3) Push Subtract Key, touch Motor Bar.
		(4) Depress First and Final Product Keys, touch Motor Bar.

Figure 39

Listing Debits and Credits and Obtaining Difference

Leave Marginal Release Block at "30." Use the Tabulator Stop at "44" and set a Tripping Block so the Second Register comes into active position at "44." Turn down the Vertical Adding Machine Space Lever.

Operating Instructions

Clear the machine.

Return the carriage as far to the right as possible, making sure that the Register Trip Indicator points to No. 1.

Debits are printed and added in the first column, First Register. After listing the first debit tabulate to the second column at "44," which brings the Second Register into active position, and list the first credit. To return the carriage to the first column, depress the Carriage Return Key. This will cause the paper to space up automatically.

Print the total of debits by depressing the Front Total Key, holding down the Rear Register Key and touching the Motor Bar, which transfers the amount to the Rear Register.

Print the total of credits by depressing the Front Total and Extend Keys, and touching the Motor Bar, which transfers the amount to the Multiplier-Subtractor.

To print the difference between debits and credits, push the Subtract Key, touch Motor Bar; depress the First and Final Product Keys, touch Motor Bar, which clears the machine.

EXAMPLE

2749 68	1345 60	
4354 75	987 45	
456 89	2256 27	
7561 32	4589 32	2972 00

Figure 40

Transferring Amounts from one Section to Another

To transfer an amount from the First to the Second Register, use Rear Register and Front Total Keys, Motor Bar; push Register Trip Button (or tabulate carriage to bring Second Register into position); Final Product Key, Motor Bar.

To transfer an amount from any Front Register (in active position) to Rear Register, use Rear Register and Front Total Keys, Motor Bar.

To transfer an amount from Rear Register to any Front Register (in active position), use Final Product Key and Motor Bar.

To transfer an amount from any Front Register (in active position) to Multiplier-Subtractor, use Front Total and Extend Keys, Motor Bar.

To transfer an amount from Rear Register to Multiplier-Subtractor, use Final Product Key and Motor Bar; Front Total and Extend Keys, Motor Bar.

Fractions may be printed only in the First Front and Rear Registers. They may be computed (added, subtracted or multiplied) only in these two registers and the Multiplier-Subtractor.

Printing and Adding Fractions

Tenth Fractional Biller

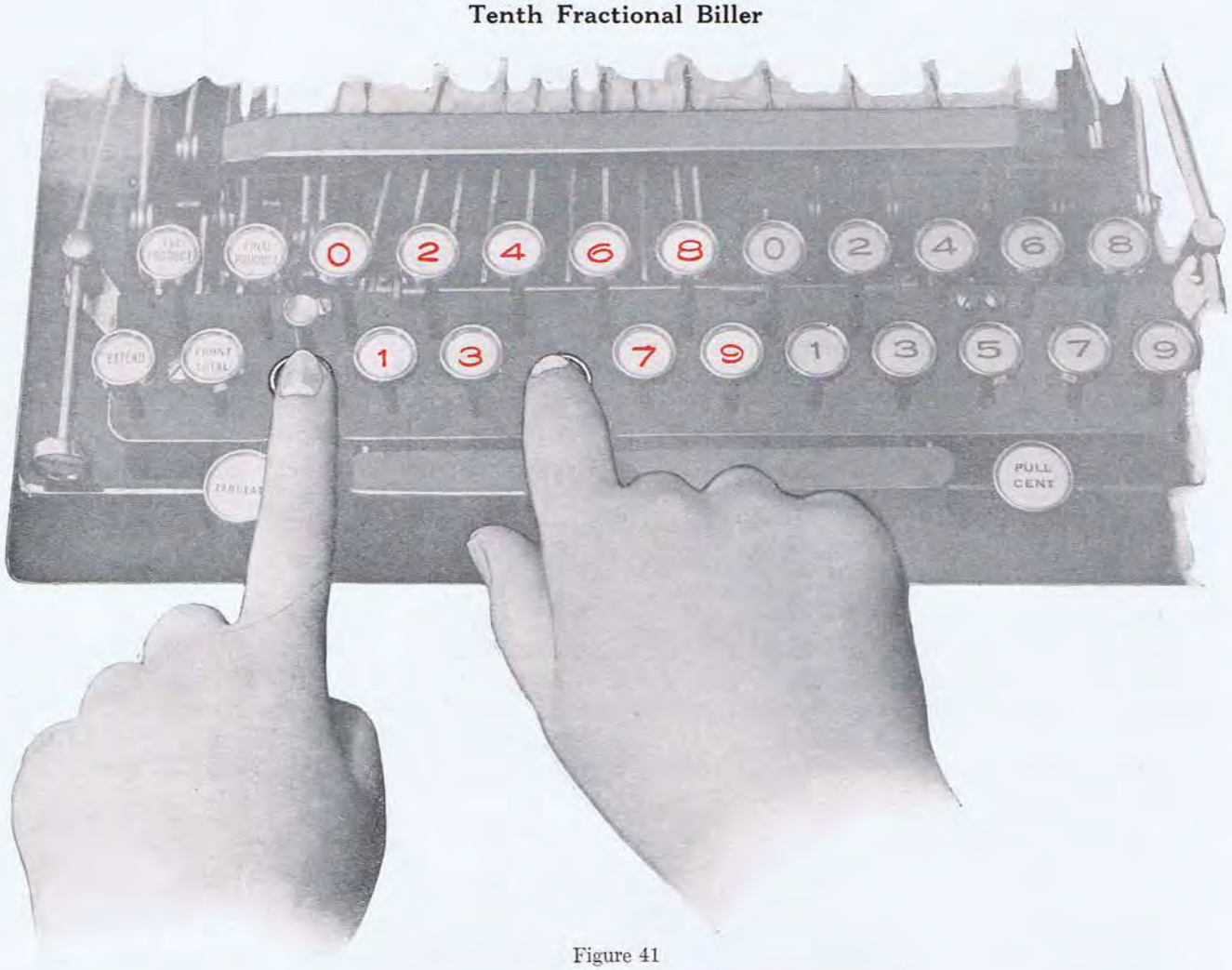

Figure 41

Clear the machine.

Fractions may be printed only in the First Front and Rear Registers when the Register Indicator is in No. 1 position. They may be computed (added, subtracted or multiplied) only in these two registers and the Multiplier-Subtractor.

Fractions are handled the same way as whole numbers except in the manner of introducing them into the machine.

EXAMPLE

35
47
4
86

Figure 42

To print and add fractions, bring the First Register into active position. Then hold down the Fraction-Rear Register Key and strike the Red Key representing the fraction (see Figure 41). Release the Fraction-Rear Register Key and touch the Motor Bar.

More fractions may be added by the same method. Fractions are transferred from the First Front Register to the Rear Register, or extended into the Multiplier-Subtractor, or the total of them is printed in the same way as the whole numbers.

If a whole number precedes the fraction, as is the case with the first amount in Figure 42, merely write the whole number on the Red Keys in the usual manner. Then register the fraction.

Only tenth fractions are handled on Style 7202, illustrated on this page. Eighth fractions are handled by Style 7205, shown on page 29.

All other fractions are handled as decimals, as shown in the invoices on pages 32, 35 and 37.

Printing and Adding Fractions

Eighth Fractional Biller

Figure 43

Clear the machine.

Fractions may be printed only in the First Front and Rear Registers when the Register Indicator is in No. 1 position. They may be computed (added, subtracted, multiplied) only in these two registers and the Multiplier-Subtractor. They are handled on this machine exactly the same way as on Style 7202, shown on page 28.

To print and add fractions, bring the First Register into active position. Then hold down the Fraction-Rear Register Key and strike the Red Key representing the fraction (see Figure 43). Release the Fraction-Rear Register Key and touch the Motor Bar.

More fractions may be added by the same method. Fractions are transferred from the First Front Register to the Rear Register, or extended into the Multiplier-Subtractor, or the total of them is printed in the same way as the whole numbers.

If a whole number precedes the fraction, as is the case with the first amount in Figure 44, merely write the whole number on the Red Keys in the usual manner. Then register the fraction.

Only eighths, fourths and one-half are handled on Style 7205, illustrated on this page. Tenth fractions are handled by Style 7202, shown on page 28.

All other fractions are handled as decimals, as shown in the invoices on pages 32, 35 and 37.

EXAMPLE

$$\begin{array}{r} 5\frac{3}{8} \\ 2\frac{5}{8} \\ \frac{7}{8} \\ \hline 8\frac{7}{8} \end{array}$$

Figure 44

Making Invoices on the Burroughs Moon-Hopkins Billing Machine

Styles 7202 and 7205 on pages 31, 32, 39, 40, 41, 42, 43 and 44.
Style 7202 on pages 33, 34, 35. Style 7205 on pages 36, 37, 38.

Setting Up the Machine for Billing

Quantity is written with the typewriter at "5" on the black scale. Tabulating to "12," the description is typed. Weight, yardage or other information is put in at "44" or thereabout. At "55" the price is written with the Red Keys and extended. When the carriage is tabulated to "67," the Second Register automatically comes into active position, and the gross amount is printed. The net amount is printed at "79," with the Third Register in active position.

This set-up handles all invoices in this book but the machine can be set to handle any kind of invoice desired.

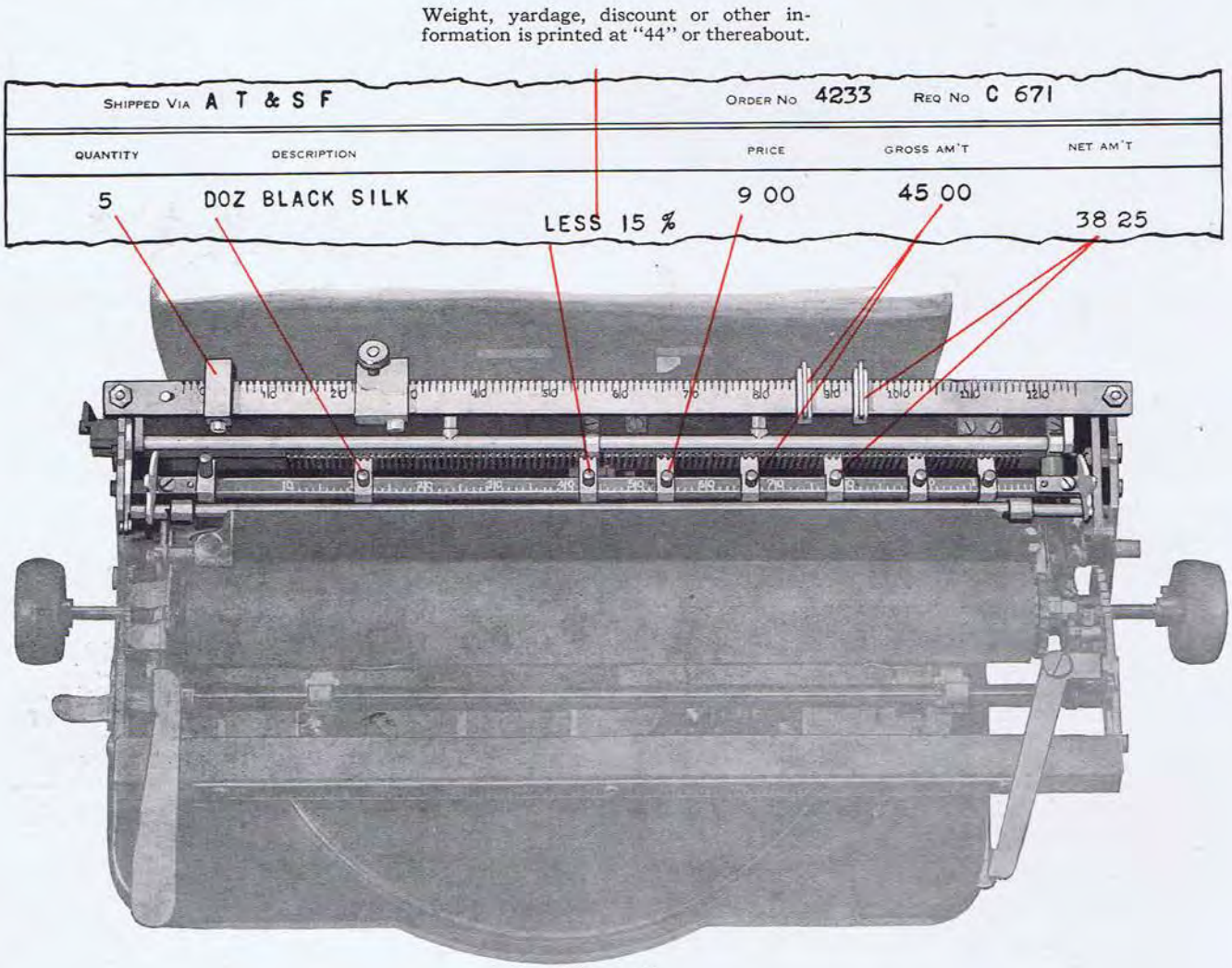

Figure 45

SUBJECT TO SIGHT DRAFT IF NOT PAID AT MATURITY
PRICES SUBJECT TO CHANGE WITHOUT NOTICE

ALL MERCHANDISE AT BUYER'S RISK OF TRANSPORTATION
ALL CLAIMS TO BE MADE WITHIN FIVE DAYS

Velvet Hosiery Company

MANUFACTURERS
AND IMPORTERS OF

FINE HOSIERY

A MERCHANT

ANYWHERE U S A

TERMS NET CASH 30 DAYS
OR 1% 10 DAYS

SHIP VIA B & O

OUR ORDER 1590 YOUR ORDER 131

QUANTITY	DESCRIPTION	PRICE	GROSS AMOUNT	NET AMOUNT
5	DOZ BLACK HOSE	8 75		43 75
9	DOZ CORD	9 45		85 05
27	DOZ WHITE	9 45		255 15
11	DOZ SILVER	19 25		211 75
6	DOZ NUDE	20 00		120 00
				715 70

Figure 46. Either Tenth Fractional or Eighth Fractional Machine.

Multiplication

Above is a very simple invoice illustrating multiplication and the basic principles of billing with the Burroughs Moon-Hopkins Billing Machine. The standard set-up shown on page 30 is used, as with all of the examples in the following pages.

Quantity and description are typed at "5" and "12" on the black scale, respectively. Enter price at "55" with the Red Keys and depress the Extend Key before touching the Motor Bar.

To multiply, (taking the first line of the above invoice as an example) depress the black "5" Key, which automatically causes the motor to operate the machine and multiplies the quantity in the Multiplier-Subtractor by 5.

Tabulate to "79" and print the result by depressing the Final Product Key and touching the Motor Bar. This clears the Rear Register and transfers the result into the Third Front Register, where it is stored.

When all extensions have been made, tabulate to "79" and print the net amount of the bill by depressing the Front Total Key and touching the Motor Bar.

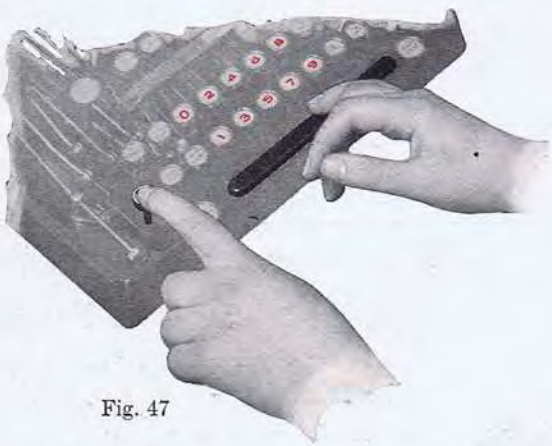

Fig. 47

Figure 48

THE PREMIER SHIRT CO.

Shirt Department

Sold to A MERCHANT

ANYWHERE U S A

TERMS 30 DA NET ONE-HALF PER CENT A MONTH ALLOWED FOR ANTICIPATION. PAYABLE IN N. Y EXCHANGE

QUANTITY	DESCRIPTION	PRICE	GROSS AMOUNT	NET AMOUNT
5¾	DOZ BONAIR	25 20		144 90
9½	DOZ PELHAM	31 20		296 40
14¾	DOZ WILLARD	55 20		814 20
4⅝	DOZ PELHAM	25 20		111 30
				1366 80

Figure 49. Either Tenth or Eighth Fractional Machine.

A Fraction in the Quantity

The difference between this invoice and the previous one is the presence of a fraction in the quantity, or multiplier. In handling cases like this, the fraction is always reduced to its decimal equivalent. For example, in the first line, ¾ is represented by .75. So the price would be multiplied by 5.75 on the Black Keys.

In multiplying by a decimal, no matter whether mentally or by machine, it is necessary to point off the result. On the Burroughs this is done simply by depressing the Point-off Key once for each decimal in the multiplier. The Full Cent Key (see page 15) must then be depressed, after which the net amount may be printed with the Final Product Key and Motor Bar.

A table of decimal equivalents of fractions, is printed in the back of this book. Or, upon request, the Burroughs Company will supply a card containing them.

TERMS NET NO CASH DISCOUNT

The Queen City Novelty Company

SOLD TO A MERCHANT

ANYWHERE U S A

ORDER NO 324 A VIA C R I & P

QUANTITY	DESCRIPTION	PRICE	GROSS AMOUNT	NET AMOUNT
27	ONLY SHAWL STRAPS	38½		10 40
235	DOZ ORNAMENTS	12½		29 38
37¾	DOZ ORNAMENTS	1 37½		51 91
28¾	DOZ ORNAMENTS	4 65½		133 83
				225 52

Figure 50. Illustrating the Tenth Fractional Machine.

When the Price Contains a Fraction that can be Printed with the Calculating Mechanism

When the price contains a fraction that can be printed by the calculating mechanism, register the whole numbers in the price with the Red Keys in the usual manner. Then hold down the Fraction Key, register the fraction with the Red Key (see Fraction Key, page 14), release the Fraction Key and depress the Extend Key, Motor Bar, as usual. The price can now be multiplied by quantity as in any invoice.

When there is a fraction in the quantity or price, depress the Full Cent Key before printing the answer.

SMITH, BROWN SONS & COMPANY
11077 SOUTH ROAD, CHICAGO

SOLD TO A MERCHANT

ANYWHERE U S A

ALL GOODS SHIPPED AT PURCHASER'S RISK

TERMS 2 % 10 DAYS ORDER NO. 5189

QUANTITY	DESCRIPTION	PRICE	GROSS AM'T	NET AM'T
4	DOZ "I SPECIALS	9⅝		39
8	DOZ BOXES TACKS	12⅝		1 01
3	DOZ FILES	2 25		6 75
2	GROSS HAMMERS	11 63		23 26
				31 41

Figure 51. Illustrating the Tenth Fractional Machine.

Use of Four Decimal Tabulator Keys

When Price Cannot Be Printed by the Calculating Mechanism

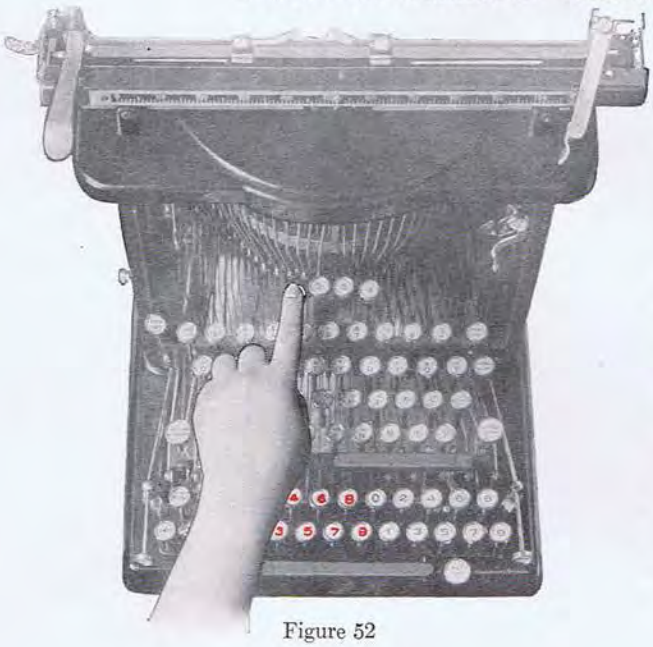

Figure 52

In bills where a fraction in the price cannot be written with the Red Keys, the typewriter keys are used. The four Decimal Tabulator Keys shown in Figure 52 are provided for the purpose of tabulating to the correct position in such cases.

In the first line of Figure 51, the price contains one figure. Therefore, to tabulate to the price column in writing this line, No. 1 Tabulating Key would be depressed, as in Figure 52. In the second, third and fourth lines the second, third and fourth keys would be used respectively.

Tabulating with one of these keys causes the figures to be typed in the same columns as they would be printed with the Red Keys if the carriage were tabulated with the Tabulator Key at the bottom of the keyboard.

THE
EASTERN MACHINERY CO.
Machinery Tools
Supplies

SOLD TO A MERCHANT

ANYWHERE U S A

TERMS: NET 30 DAYS
NO DISCOUNT FOR PREPAYMENT
PAYABLE IN NEW YORK FUNDS

YOUR ORDER 1280 OUR ORDER B 964 DATE JULY 14 1922

QUANTITY	DESCRIPTION	PRICE	GROSS AMOUNT	NET AMOUNT
17¾	DOZ FILE HANDLES	1 12¾ DOZ		20 01
5¼	DOZ 1" SET SCREWS	2 25¾ DOZ		11 85
8¾	DOZ ASSORTED DRILLS	6 45¼ DOZ		56 46
				88 32

Figure 53. Illustrating the Tenth Fractional Machine.

How to Handle Fractions in Price that Cannot be Printed by the Calculating Mechanism

Sometimes fractions occur in the price that must be written with the typewriter. In such a case, tabulate to the price column, using one of the Decimal Tabulator Keys as described on page 34, and type the price.

After typing the price, raise the carriage and register the whole number on the Red Keys and also the decimal equivalent of the fraction. For example, in the first line of the invoice shown above, register 1.1275. Extend it into the Multiplier-Subtractor.

After using the Black Keys to multiply by the quantity, point off as many places as there are decimal places in both the price and quantity, using the Point-off Key for this purpose.

Exception: You cannot point off more places than you have multiplied by. If it is necessary to point off more places than are in the multiplier, prefix ciphers in front of the multiplier.

For example, if we were multiplying 145¾ (145.75) by 8¾ (8.75), there would be four places to point off, which is two more than there are in 8.75. It would be necessary to multiply by .0875 in order to have as many places in the multiplier as must be pointed off.

When checking this bill, please open every box as they may contain several articles.

SMITH BROTHERS

Importers and Exporters of General Merchandise

Prices subject to change without notice : : :

Sold to A MERCHANT

ANYWHERE U S A

Terms 2% 10 DAYS Our Order B 692

QUANTITY	DESCRIPTION	PRICE	GROSS AM'T	NET AM'T
6	BOXES LADIES HDKFS	37 1/2		2 25
18	PCS RIBBON	56 3/8		10 15
4	DOZ HAIR NETS	63 1/8		2 53
15	DOZ W E CURLERS	75 5/8		11 34
				26 27

Figure 54. Illustrating the Eighth Fractional Machine.

When the Price Contains a Fraction that can be Printed with the Calculating Mechanism

When the price contains a fraction that can be printed by the calculating mechanism, register the whole numbers in the price with the Red Keys in the usual manner. Then hold down the Fraction Key, register the fraction with the Red Key (see Fraction Key, page 14), release the Fraction Key and depress the Extend Key, Motor Bar, as usual. The price can now be multiplied by quantity as in any invoice.

When there is a fraction in the quantity or price, depress the Full Cent Key before printing the answer.

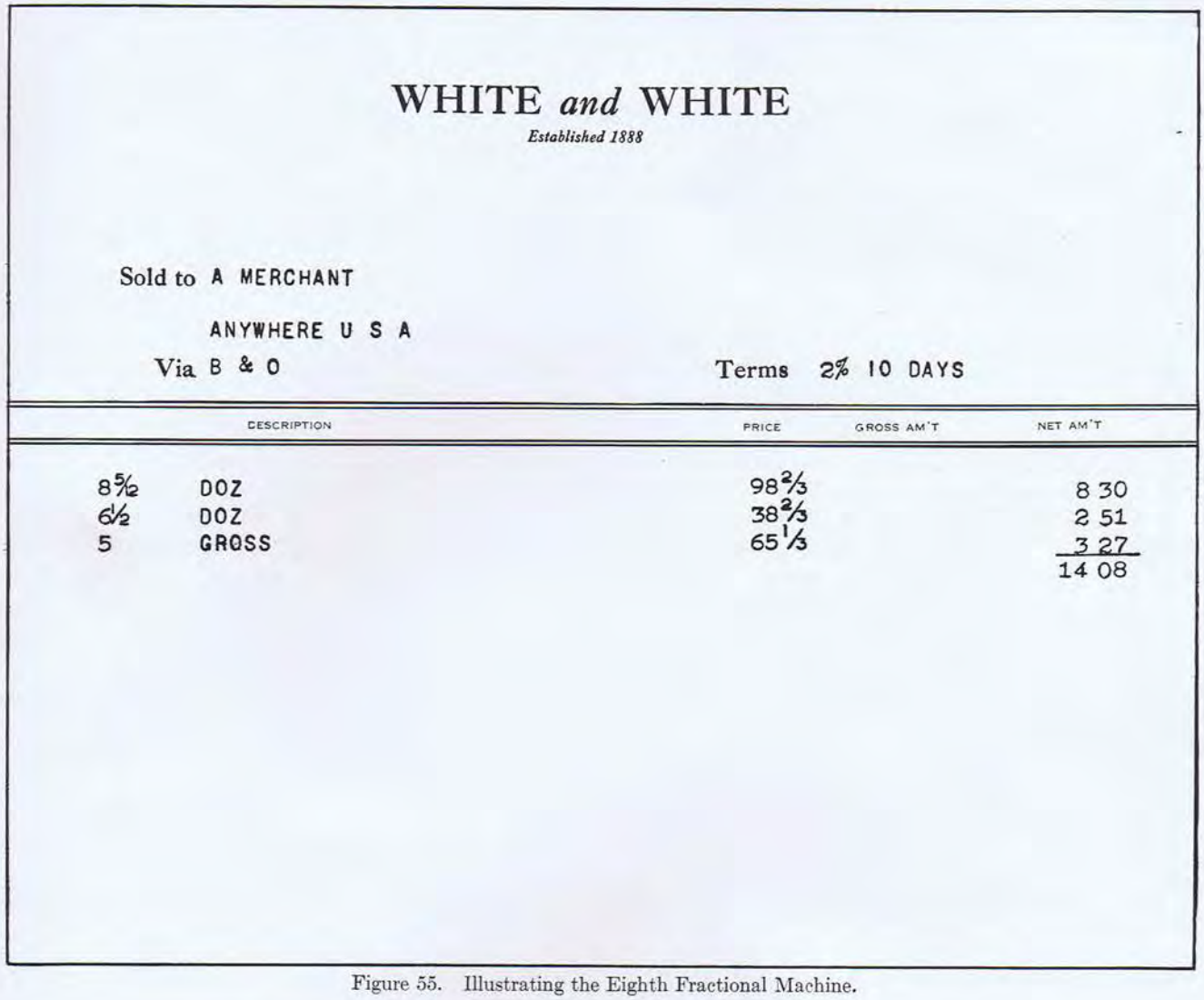

Figure 55. Illustrating the Eighth Fractional Machine.

How to Handle Fractions in Price that Cannot be Printed by the Calculating Mechanism

Sometimes fractions occur in the price that must be written with the typewriter. In such a case, tabulate to the price column, using one of the Decimal Tabulator Keys as described on page 34, and type the price.

After typing the price, raise the carriage and register the whole number on the Red Keys and also the decimal equivalent of the fraction.

For example, in the first line of the invoice shown above, register 98.667. Extend it into the Multiplier-Subtractor.

We now multiply by 8.4167, the quantity. However, it is necessary to multiply by .0084167 because you cannot point off more places than you have multiplied by. Since there are seven places in 98.667 and 8.4167, we prefix enough ciphers to point off seven places, and therefore multiply by .0084167.

After multiplying by .0084167, tabulate to the Net Amount column, depress the Decimal Discount Key, depress the Full Cent Key and print the answer with the Final Product Key, Motor bar.

ALL CLAIMS TO BE MADE WITHIN 5 DAYS

Norman O. Hill, Sons & Co.

Wholesale Dry Goods

Sold to A MERCHANT

ANYWHERE U S A

Shipped via M C *Invoice No.* 1720

QUANTITY	DESCRIPTION		PRICE	GROSS AM'T	NET AM'T
4	PCS HOSIER BROWN 47½ 48½ 49¾ 46¼	1 92	9¾		18 72
1	PC INDIAN HEAD BLEA	37¾	28⅞		10 90
3	PCS SOUDAN FOULARD 29⅞ 24⅜ 21⅝	75⅞	1 12¾		85 55
2	WILTON VELVET RUGS		42 75		85 50
					200 67

Figure 56. Illustrating the Eighth Fractional Machine.

When Quantity Is Accumulated and Extended

In writing the first line, write the quantity and description as usual, then space up the platen by hand and bring the carriage back until the pointer is opposite "17" on the Black Scale.

Print and add 47½ with the Red Keys, space five times, print and add 48½, space five times, and accumulate the other two amounts in the same way.

Tabulate to "44", where the total yardage of 192 is printed and extended into the Multiplier-Subtractor with the Front Total and Extend Keys, Motor Bar.

Price must be written with the typewriter, so use the four Decimal Tabulator Keys as instructed on page 34. After price has been written, multiply by the price of 9¾ (9.75) on the Black Keys. Tabulate to the Net Amount column, depress the Point Off Key twice, depress the Full Cent Key. Print the net amount by depressing the Final Product Key, Motor Bar.

In writing the last line of the invoice, tabulate to the price column with the Tabulate Key as in an ordinary invoice, write the price with the Red Keys and extend it as usual. Then multiply by quantity and extend the net amount in the usual manner.

MORSE DRILLS
CARD TAPS
BLACE DIAMOND FILES
BOSTON GEARS
GROBET SWISS FILES
NO-GRAN BEARING METAL
REED VISES

LISTS AND DISCOUNTS SUBJECT TO CHANGE WITHOUT NOTICE

30 DAYS NET 2% 10 DAYS

A. R. MAC ISAAC & CO.

MANUFACTURERS' AND MACHINISTS' SUPPLIES

WHEN REFERRING TO THIS INVOICE MENTION NUMBER

Sold to A MERCHANT

ADDRESS

ANYWHERE U S A

TOWN

STATE

ORDER NO 916 REQ NO 522

QUANTITY	DESCRIPTION		PRICE	GROSS AM'T	NET AM'T
5	DOZ 6" FILES		8 75	43 75	
		LESS 15 %			37 19
9	DOZ #27 TWIST DRILLS		2 35	21 15	
		LESS 25 %			15 86
27¾	DOZ 12" TUNGSTEN H S BLADES		7 90	219 23	
		LESS 35 %			142 50
49½	DOZ 2" BOLTS		1 25	61 77	
		LESS 2 %			60 53
					256 08

Figure 57. Either Tenth or Eighth Fractional Machine.

Calculating a Discount

Items subject to discount must be printed in the Second Front Register at "67" in the "Gross Amount" column. If there is a fraction in the multiplier (the quantity) or the price, use the Point-off and Full Cent Keys before printing the item.

After printing the gross amount, extend it into the Multiplier-Subtractor with the Extend and Front Total Keys, Motor Bar. To type the rate of discount, return carriage with Carriage Return Key and tabulate with the No. 4 Decimal Tabulator Key.

We are now ready to calculate the discount. To do this, multiply by the decimal equivalent of the discount. This is determined by deducting the rate of the discount from 100%. For example, in the first line of the invoice shown on this page, multiply by .85 (100% less 15%).

Tabulate to the "Net Amount" column and depress the Decimal Discount Key. This key eliminates all decimals below one cent or one unit in a product and *is always depressed after taking a discount.* Then use the Full Cent Key and print the net amount with the Final Product Key, Motor Bar.

Any claims for shortage or reductions must be made within ten days from receipt of goods

Branch Offices
NEW YORK and CHICAGO

THE CONSOLIDATED HARDWARE CO.

Sold to A MERCHANT
Address
ANYWHERE U S A
Shipped to DITTO
Via D L & W

TERMS 30 Days net. 2 % discount allowed if paid within ten days from date of this invoice
Cash discount allowed on net charge only after all deductions have been made

OUR ORDER NO 2203 YOUR ORDER NO. 1401

QUANTITY	DESCRIPTION		PRICE	GROSS AMOUNT	NET AMOUNT
5	DOZ 6" FILES		8 75	43 75	
9½	DOZ HAMMERS		11 25	106 88	
27¾	DOZ 4" BOLTS		4 15	115 16	
				265 79	
		LESS 12½ %			232 57
49⅝	DOZ 4" HINGES		1 25	61 77	
		LESS 60 %			24 71
5	DOZ 12" HACK SAW BLADES		85	4 25	
		LESS 2½ %			4 14
					261 42

Figure 58. Either Tenth or Eighth Fractional Machine.

Two or More Consecutive Items Subject to Discount

Extension of the three items subject to 12½% discount in this invoice is made the same way as in the previous example, gross amounts being printed and accumulated in the Second Register at "67."

The total of them is printed with the Extend and Front Total Keys, Motor Bar, which extends the amount into the Multiplier-Subtractor. Then the discount is taken in exactly the same way as with items in the previous invoice. Before printing the net amount, use the Decimal Discount and Full Cent Keys.

The Detroit Hardware Company

SOLD TO A MERCHANT

ANYWHERE U S A

TERMS 2% 10 DAYS OUR ORDER D 663 YOUR ORDER 545

QUANTITY	DESCRIPTION		PRICE	GROSS AMOUNT	NET AMOUNT
25½	DOZ ½" SET SCREWS		96	24 48	
28	DOZ 1" SET SCREWS		1 25	35 00	
				59 48	
		LESS 70-10 %			16 06
95 1½	DOZ ASSORTED DRILLS		2 45	235 00	
		LESS 15-10-5 %			170 79
					186 85

Figure 59. Either Tenth or Eighth Fractional Machine.

Chain Discounts

Use the discount equivalent for the chain discount. A table of these is shown at the back of this book or a card containing them may be obtained from the Burroughs Company.

After extending the gross amount into the Multiplier-Subtractor and multiplying by the discount equivalent, tabulate to the "Net Amount" column and use the Discount, Full Cent and Final Product Keys, Motor Bar.

REMIT BY DRAFT ON NEW YORK OR BY EXPRESS PREPAID

The Hayes & Sproull Hardware Co.

WHOLESALE
HARDWARE, CUTLERY AND SPORTING GOODS

Sold to A MERCHANT

ANYWHERE U S A

Terms: 30 DAYS NET

BILLS NOT PAID WHEN DUE ARE SUBJECT TO INTEREST AFTER MATURITY

QUANTITY	DESCRIPTION	PRICE	GROSS AMOUNT	NET AMOUNT
27	SETS SHARPENING STONES	6 75	182 25	
	LESS 45-12½ %			87 71
19	GROSS MISS-HOOKS	95	18 05	
	LESS 65-35 %			4 11
7¾	DOZ I X L PEN KNIVES	14 65	113 54	
7	DOZ KEEN KUTTER DO	24 75	173 25	
			286 79	
	LESS 25-15-12½ %			159 97
				251 79

Figure 60. Either Tenth or Eighth Fractional Machine.

Taking Off Chain Discount When Equivalent Is Not Known

If the discount equivalent is not given in the table, it may be found quickly and easily by the following method, using 15-10-5% for an example and $125 00 as the gross amount to be discounted.

In the usual manner, multiply price by quantity and print the gross amount in the Second Register position. Extend it into the Multiplier-Subtractor. Return the carriage and type in the rate of discount as directed on page 39, then raise the carriage with the First Register still in active position.

Multiply the $125 00 in the Multiplier-Subtractor by .85, the discount equivalent of 15%. Depress the Discount and Final Product Keys, and again extend the amount into the Multiplier-Subtractor. Multiply by .90, use the Discount and Final Product Keys and extend; multiply by .95, lower the carriage, tabulate to the "Net Amount" column, depress the Discount, Full Cent and Final Product Keys, Motor Bar.

This will print the net amount and store it in the Third Register.

Russell & MacLean
(INCORPORATED)

Sold to A MERCHANT

ANYWHERE U S A

OUR ORDER NO D 1181 YOUR ORDER NO 715 C

QUANTITY	DESCRIPTION	PRICE	GROSS AMOUNT	NET AMOUNT
2 45	LBS SILVER STAR HAMS	24 65 PER C		60 39
1 65	LBS PACIERS SPECIAL HAMS	23 75 " "		39 19
4 10	LBS AT 23¾ PER CWT			97
				100 55

Figure 61. Either Tenth or Eighth Fractional Machine.

When Quantity in Terms of Weight Must be Figured

Print quantity at "12" in the First Register with the Red Keys instead of typing it. Type description without tabulating. Extend price in the usual manner and use the Black Keys to multiply by quantity, as in any other invoice. When the price is "per hundred," point off two places with the Point-off Key before printing the net amount.

Weights of various items are allowed to accumulate in the First Register. The total of them is printed and extended into the Multiplier-Subtractor where it is multiplied by the freight rate. When this rate does not exceed 99 cents per hundred, the Discount Key may be used for pointing off. Otherwise, use the Point-off Key.

Freight charges may then be added right into the net amount of the invoice.

FOUNDED 1856

HARTLEY & RICHMILLER CO., INC.

MAKERS OF

PAINTS, VARNISHES, DRY COLORS
BRUSHES, ARTISTS' MATERIALS

SOLD TO A MERCHANT

ANYWHERE U S A

TERMS 2% 10 DA YOUR ORDER NO C 641

QUANTITY	DESCRIPTION	PRICE	GROSS AMOUNT	NET AMOUNT
24 65	LBS WHITE LEAD	12½	308 13	
46 75	LBS PUTTY	8½	397 38	
71 40			705 51	
	LESS 25 %			529 13

Figure 62. Either Tenth or Eighth Fractional Machine.

When Quantity is Larger than Price

In billing where quantity is invariably larger than price, the ordinary procedure may be reversed. Quantity is printed and extended by use of the Red Keys, and price is typed. Then multiply on the Black Keys by the price, instead of by quantity as is done in most invoices.

Invoices Illustrating Billing

in Various Lines of Business

In the following pages you will find invoices showing how work is handled in various lines of business on the Burroughs Moon-Hopkins Billing Machine.

No operator in any particular line of business needs to know how to do all these invoices. They are placed here merely for reference purposes.

They also serve to illustrate how flexible the Burroughs is and how it can be adjusted to fit any billing need.

Bolts and Screws

Note: "C" indicates that the price is per hundred, and two places should be pointed off after multiplying by quantity.

"M" indicates that the price is per thousand and three places should be pointed off after multiplying by the quantity.

Show amount of discount and amount less the discount by using discount equivalent.

EXAMPLE:

	Type	Price Extend	Second Register	Third Register
422	$\frac{7}{8}$ X $6\frac{1}{2}$ MACH BOLTS THD	16 25 C		68 58
375	$\frac{7}{8}$ X $4\frac{1}{4}$ MACH BOLTS THD H X N	17 50 C	65 63	
	40-10%		30 19	
			35 44	
	PLUS 10%		3 54	
				38 98
				107 56
	LESS FRT 385 LBS AT 20C PER CWT			77
				106 79

CLEAR MACHINE.

OPERATION:

Extend price and multiply by the quantity.
Print product in the Third Register.
Second Item:
Extend price and multiply by the quantity.
Extend total and multiply by 46 (discount equivalent of 40-10%).
Print with First Product Key.
Multiply by 54 (less discount equivalent).
Point off and print product in Second Register.
Extend total and multiply by 10%.
Print with First Product Key.
Multiply by 1.10 (plus 10%) point off and print product in Third Register.
Print sub-total.
Extend pounds freight and multiply by price per cwt.
Print product in Second Register.
Extend total, trip Indicator to Third Register.
Subtract and take product.
Lower carriage and print total.

Dress Trimmings

Note: To divide by 12 (quantity contained in a dozen) multiply by the reciprocal .083334. Omit two decimal points when multiplying by the reciprocal, then point off two extra places after multiplying by the quantity.

Multiply the price by the reciprocal, then extend this product and multiply by the quantity.

In the second item multiply the price by 12 (quantity contained in a dozen) and then multiply this product by the quantity $6\frac{3}{4}$.

EXAMPLE:

Type	Price Extend	Second Register	Third Register
126 ONLY GOLD TASSELS	6 75 DZ		70 88
$6\frac{3}{4}$ DOZ GOLD TASSELS	18 EA		14 58
			85 46

CLEAR MACHINE.

OPERATION:

Extend price, multiply by the reciprocal and take product—with Carriage raised—in the First Register.

Extend total and multiply by the quantity.

Point off and print product in the Third Register.

Second Item:

Extend price, multiply by 12 (quantity contained in a dozen) and take product—with Carriage raised—in the First Register.

Extend total and multiply by the quantity.

Print product in the Third Register.

Space platen and print total.

The same result is obtained when extending the price and multiplying by the reciprocal of .12 (.083334), and then multiplying by the quantity 126, as when dividing 126 by 12 and then multiplying by the price.

Dress Braid Trimming

In the following bill the price is per gross yard. Divide 178 yards by 144 (quantity contained in a gross) in order to obtain the total gross yards, then multiply this product by the price.

Note: A shorter method is to extend the price $3.50, and then multiply this product by the reciprocal of 144 (.0069445). Point off, then multiply this product by the quantity. Omit the two ciphers when multiplying by the reciprocal, then point off two extra places after multiplying by the quantity and print the net result in Third Register.

EXAMPLE:

Type	Price Extend	Second Register	Third Register
178 YDS COL GIMP	3 50 GR YD		4 33
234 YDS WHITE FRINGE	45 75 " "		74 34
			78 67

CLEAR MACHINE.

OPERATION:

Extend price, multiply by the reciprocal and take product in First Register.

Extend total and multiply by the quantity.

Point off and print product in the Third Register.

Second Item:

Extend price, multiply by the reciprocal and take product in the First Register.

Extend total and multiply by the quantity.

Point off and print product in the Third Register.

Lumber

In the following example we desire to take the odd half foot on all net extensions and accumulate the total board feet for the bill in Register No. 2.

Move the tripping block on the flat scale so as to trip to Register No. 2 when carriage stops at "44" on Black Scale.

Refer to lumber table for various lengths and sizes and multiply the figure shown by the number of pieces.

EXAMPLE:

Extend		Register No. 2	Extend Price	Third Register
224	PCS WHITE PINE $2\frac{1}{2}$"X16"X14'	104 53	32 50	339 72

CLEAR MACHINE:

OPERATION:

Tabulate to "12."

Extend number of pieces (224) and multiply by 46.66667 (board feet shown in table for the above size), point off five places, depress Full Cent key, in order to take the odd half foot, and print result with Final Product key in Register No. 2. Extend price and multiply by number of feet, point off and print product in Register No. 3.

Example No. 2

Note: Lumber is sold by the board foot and is priced by the thousand. When the fractional part of a foot is carried, print the product in Register No. 1.

Abbreviation:

(M) is used for thousand.
(C) is used for hundred.
(′) is used for feet.
(″) is used for inches.

Rule:

Multiply number of pieces x thickness x width x length ÷ 12 = Board feet.
To divide by 12 multiply by the reciprocal of 12, which is .083334.
In figuring lumber point off for all decimal points in the reciprocal.
Point off three places when multiplying by the price per thousand.

EXAMPLE:

Extend	Type		Type Price	Third Register
188	PCS WHITE PINE $3\frac{1}{4}$"X12$\frac{3}{4}$"X16'	10387 FT	56 75 M	589 46

CLEAR MACHINE.

OPERATION:

Extend 188, multiply by 3¼, point off for fraction and take product in First Register.
Extend total, multiply by 12¾, point off for fraction and take product.
Extend total, multiply by 16 and take product.
Extend total, multiply by reciprocal, point off and print product in First Register.
Extend total, multiply by price and print product in Third Register.

Coal

A ton of coal contains 2000 pounds. Reciprocal of 2000 is .0005.

In the following example the quantity is expressed in pounds, and the price is per ton.

To reduce the number of pounds to tons, divide by 2000 (number of pounds contained in a ton), then multiply by the price per ton.

The operation on the Burroughs is to extend the pounds and multiply by the reciprocal of 2000, which is .0005.

Omit the first two ciphers when multiplying the number of pounds by the reciprocal (use .05), and point off two extra places after multiplying by the price in order to cancel the two decimal places omitted when using the reciprocal.

EXAMPLE:

	Gross	Tare	Net	Tons Extend	Price Type	Third Register
1	CAR COAL					
	84500	40000	44500	22 25	6 75 T	150 19

CLEAR MACHINE.

OPERATION:

Enter gross amount in Rear Register.
Extend tare amount.
Subtract and print net amount.
Extend total, multiply by .05, and print product in First Register.
Extend total and multiply by the price.
Point off twice and print product in Third Register.

Plumbing

Note: Where feet and inches are to be multiplied by the price, convert inches into the decimal part of a foot.

(′) is the abbreviation for feet.
(″) is the abbreviation for inches.

EXAMPLE:

Type	Price Extend	Second Register	Third Register
216′ 7¼″ BLACK PIPE	1 32½ FT		287 00

CLEAR MACHINE.

OPERATION:

Extend price and multiply by the quantity.
Print product in the Third Register.

Rule:

7″ = 7/12 of a foot or .5834 as the decimal part of a foot.
1/4″ of 1/12 or 1/4 of .0834 = .0208.
.0208 plus .5834 = .6042.
Quantity 216.6042.

For inches, and the fractional part of an inch, refer to fractional inch table, page 58, to obtain the correct decimal to multiply by.

Paper

In the following examples 500 sheets per ream is used.

To divide by 500 multiply by .002 which is the reciprocal of 500.

In figuring 500 sheets per ream, use the short method.

Reduce number of reams to sheets, add extra sheets, then double the weight per ream and multiply by this figure. After multiplying by the price point off three places.

EXAMPLE:

Type		Price Type	Third Register
24 R 456 SHEETS WHITE BOND 17X22	18 LBS R	16½ LB	73 99

CLEAR MACHINE.

OPERATION:

Extend 500, multiply by numbers of reams and take product in First Register.
Add 456 in the First Register.
Extend total, multiply by 36 (double the weight per ream) and take product.
Extend total and multiply by the price (.016½).
Point off four times and print product in Third Register.

Prefix cipher when multiplying by the price in order to cancel the three decimal points in the reciprocal of 500.

Glass

Note: Multiply number of pieces x width x length x reciprocal x price.

To reduce square inches to square feet divide by 144 or multiply by the reciprocal .00694445

Omit the first two ciphers when multiplying by the reciprocal in order to carry the result out to hundredths. Point off two extra places when multiplying by the price to cancel the two decimal points when the ciphers were omitted.

EXAMPLE:

Type		Price Type	Third Register
138 PCS PLATE GLASS 14"X38"	509 83³ SQ FT	93c SQ FT	474 14

CLEAR MACHINE.

OPERATION:

Extend quantity and multiply by width in First Register.
Take product, extend total and multiply by length.
Take product, extend total and multiply by the reciprocal.
Take product, extend total and multiply by the price.
Point off twice and print product in the Third Register.

Steel and Iron

To find the lineal feet in the following example, multiply the number of pieces by the length.

To find the weight multiply the total lineal feet by the given weight per lineal foot.

After multiplying by the price, point off two places for hundredweight and two places for the hundredth part of a pound, set up in the Multiplier as a whole number. 9.3 pounds is given weight per lineal foot for the following size:

RULE:

Multiply the number of pieces x length x weight x the price.
Length 15′ 3″; convert 3 inches into the decimal part of a foot, which = .25.
Extend 15.25 and multiply by the quantity.
Multiply by the given weight per lineal foot and point off one place.
When multiplying by the following price prefix a cipher and point off four places.

EXAMPLE:

Type		Price Type	Third Register
5 BARS $\frac{1}{4}$"X2"X15'3"	709 12^{5} LBS	4 52 C	32 05

CLEAR MACHINE.

OPERATION:

Extend length and multiply by the quantity in First Register.
Take product. Extend total and multiply by the given weight per foot.
Print product in First Register.
Extend total and multiply by the price.
Print product in Third Register.

Example No. 2

Note: Steel and iron are sometimes priced by the gross ton.
A gross ton contains 2240 pounds.
Reciprocal of 2240 is .00044643.

EXAMPLE:

Type	Pounds Extend	Tons	Price	Third Register
1 CAR IRON BILLETS	643 45 LBS	28 72^{5} T	49 75	1429 07

CLEAR MACHINE.

OPERATION:

Extend pounds and multiply by the reciprocal. (Omit the first two ciphers.)
Print product in First Register.
Extend total and multiply by the price, point off twice.
Print product in the Third Register.

Note: When multiplying by the reciprocal, you will note that the first two ciphers were omitted in order to carry the result out to the hundredths part of a ton, therefore, two places must be pointed off when multiplying by the price.

Sheet Steel

Note: Multiply number of pieces x width x length x reciprocal x weight x price.
To divide by 144 multiply by the reciprocal. (Divide by 144 to find total square feet.)
Reciprocal of 144 is .00694445.
Omit the first two ciphers when multiplying by the reciprocal in order to carry the result out to hundredths. Point off two extra places when multiplying by the price to cancel the two decimal points, when the ciphers were omitted.
Multiply the total square feet by the weight, .7669 per square foot, which is taken from a table.

EXAMPLE:

Type		Price Type	Third Register
103 SHEETS #28 STEEL 12"X91"	599 01^2 LBS	10 35 C	62 00

CLEAR MACHINE.

OPERATION:

Extend quantity and multiply by width, in First Register.
Take product, extend total and multiply by length.
Take product, extend total and multiply by reciprocal.
Take product, extend total and multiply by given weight per square foot.
Take product, extend total and multiply by price.
Print product in Third Register.

Grain

Note: To reduce pounds to bushels, multiply by the reciprocal for the number of pounds contained in a bushel.
Reciprocal of 60 is .0166667. (Wheat weighs 60 pounds to the bushel.)
Omit two decimal points in pointing off when multiplying by the reciprocal in order to carry the result out to hundredths part of a bushel. Point off two extra places when multiplying by the price to cancel the two decimal points omitted when multiplying by the reciprocal.

EXAMPLE:

Quantity Extend	First Register	Price Type	Third Register
47186 LBS TURKEY RED WHEAT	786 43^4 BU	1 $45\frac{1}{2}$ BU	1144 26

CLEAR MACHINE.

OPERATION:

Tabulate to "12."
Extend quantity and multiply by the reciprocal.
Print product in First Register.
Extend total and multiply by the price.
Print product in the Third Register.

Interest

In figuring interest, the interest on one dollar for one day at a given rate is called a constant.

Note: Dividing the rate by 360 (number of days in a year) will give the constant.

The reciprocal for .06¾% is .0001875.

When multiplying the principal by the constant omit the first two ciphers in order to obtain the correct result.

Point off two extra places when multiplying by the number of days to cancel the two decimal points when the ciphers were omitted.

Principal x constant x days = interest.

EXAMPLE:

	Int. One Day	87 Days
125 75 INT 87 DAYS AT 6¾%	2 35⁷	2 05

CLEAR MACHINE.

OPERATION:

Extend amount of principal and multiply by the constant.
Take product in First Register.
Extend total and multiply by number of days.
Point off and print in Third Register.
In your work do not show the interest for one day.

Cotton

EXAMPLE:

Type	Pounds Extend	Price Type	Second Register	Third Register
5 ST LOW MIDDLING 1/16 to 1/8	2542	32		813 44
FREIGHT	2542	62½C	15 89	
WAR TAX 3% ON FRT AMT			48	16 37
				829 81

CLEAR MACHINE.

OPERATION:

Extend number of pounds and multiply by the price.
Print product in Third Register.
Extend number of pounds and multiply by the price.
Print product in Second Register.
Extend total and multiply by .03.
Print product with First Product Key.
Multiply by 1.03.
Point off, print product in Third Register.
Space platen and print total.

Decimal Equivalents

$\frac{1}{16}$	$\frac{1}{12}$	$\frac{1}{8}$	$\frac{1}{6}$	$\frac{1}{4}$	$\frac{1}{3}$	
$\frac{1}{16}$						.0625
	$\frac{1}{12}$					.083334
$\frac{2}{16}$		$\frac{1}{8}$				.125
	$\frac{2}{12}$		$\frac{1}{6}$			.16667
$\frac{3}{16}$						.1875
$\frac{4}{16}$	$\frac{3}{12}$	$\frac{2}{8}$		$\frac{1}{4}$		.25
	$\frac{4}{12}$		$\frac{2}{6}$		$\frac{1}{3}$	.33334
$\frac{5}{16}$						.3125
$\frac{6}{16}$		$\frac{3}{8}$				.375
	$\frac{5}{12}$					.41667
$\frac{7}{16}$						.4375
$\frac{8}{16}$	$\frac{6}{12}$	$\frac{4}{8}$	$\frac{3}{6}$	$\frac{2}{4}$	$\frac{1}{2}$	.5
$\frac{9}{16}$						.5625
	$\frac{7}{12}$					.58334
$\frac{10}{16}$		$\frac{5}{8}$				.625
	$\frac{8}{12}$		$\frac{4}{6}$		$\frac{2}{3}$	.66667
$\frac{11}{16}$						.6875
$\frac{12}{16}$	$\frac{9}{12}$	$\frac{6}{8}$		$\frac{3}{4}$		.75
$\frac{13}{16}$						.8125
	$\frac{10}{12}$		$\frac{5}{6}$			.83334
$\frac{14}{16}$		$\frac{7}{8}$				.875
	$\frac{11}{12}$					.91667
$\frac{15}{16}$						.9375

Table of Chain Discounts

TO BE USED IN CONNECTION WITH BURROUGHS MOON-HOPKINS BILLING MACHINE

In Discounting Bills less than $100.00 use only four figures

Rate %	5	7½	10	12½	15	16⅔	20	25	30	33⅓	35	37½
Net	.95	.925	.90	.875	.85	.83333	.80	.75	.70	.66667	.65	.625
2½	.92625	.90188	.8775	.85313	.82875	.8125	.78	.73125	.6825	.65	.63375	.60938
5	.9025	.87875	.855	.83125	.8075	.79166	.76	.7125	.665	.63333	.6175	.59375
5 2½	.87994	.85678	.83363	.81047	.78731	.77187	.741	.69469	.64838	.6175	.60206	.57891
5 5	.85738	.83481	.81225	.78969	.76713	.75208	.722	.67688	.63175	.60167	.58663	.56406
5 5 2½	.83594	.81394	.79194	.76995	.74795	.73328	.70395	.65995	.61596	.58663	.57196	.54996
7½		.85563	.8325	.80938	.78625	.77083	.74	.69375	.6475	.61667	.60125	.57813
7½ 2½		.83423	.81169	.78914	.76659	.75156	.7215	.67641	.63131	.60125	.58622	.56367
7½ 5		.81284	.79088	.76891	.74694	.73229	.703	.65906	.61513	.58583	.57119	.54922
10			.81	.7875	.765	.75	.72	.675	.63	.6	.585	.5625
10 2½			.78975	.76781	.74588	.73125	.702	.65813	.61425	.585	.57038	.54844
10 5			.7695	.74813	.72675	.7125	.684	.64125	.5985	.57	.55575	.53438
10 5 2½			.75026	.72942	.70858	.69469	.6669	.62522	.58354	.55575	.54186	.52102
10 7½			.74925	.72844	.70763	.69375	.666	.62438	.58275	.555	.54113	.52031
10 10			.729	.70875	.6885	.675	.648	.6075	.567	.54	.5265	.50625
10 10 5			.69255	.67331	.65408	.64125	.6156	.57713	.53865	.513	.50018	.48094
10 10 5 2½			.67524	.65648	.63772	.62522	.60021	.5627	.52518	.50018	.48767	.46891
Rate %	**40**	**50**	**60**	**62½**	**65**	**66⅔**	**70**	**75**	**80**	**85**	**87½**	**90**
Net	.60	.50	.40	.375	.35	.33333	.30	.25	.20	.15	.125	.10
2½	.585	.4875	.39	.36563	.34125	.325	.2925	.24375	.195	.14625	.12188	.0975
5	.57	.475	.38	.35625	.3325	.31667	.285	.2375	.19	.1425	.11875	.095
5 2½	.55575	.46313	.3705	.34734	.32419	.30875	.27788	.23156	.18525	.13894	.11578	.09263
5 5	.5415	.45125	.361	.33844	.31588	.30083	.27075	.22563	.1805	.13538	.11281	.09025
5 5 2½	.52796	.43997	.35198	.32998	.30798	.29331	.26398	.21998	.17599	.13199	.10999	.08799
7½	.555	.4625	.37	.34688	.32375	.30833	.2775	.23125	.185	.13875	.11563	.0925
7½ 2½	.54113	.45094	.36075	.3382	.31566	.30063	.27056	.22547	.18038	.13528	.11273	.09019
7½ 5	.52725	.43938	.3515	.32953	.30756	.29292	.26363	.21969	.17575	.13181	.10984	.08788
10	.54	.45	.36	.3375	.315	.3	.27	.225	.18	.135	.1125	.09
10 2½	.5265	.43875	.351	.32906	.30713	.2925	.26325	.21938	.1755	.13163	.10969	.08775
10 5	.513	.4275	.342	.32063	.29925	.285	.2565	.21375	.171	.12825	.10688	.0855
10 5 2½	.50018	.41681	.33345	.31261	.29177	.27788	.25009	.20841	.16673	.12504	.1042	.08336
10 7½	.4995	.41625	.333	.31219	.29138	.2775	.24975	.20813	.1665	.12488	.10406	.08325
10 10	.486	.405	.324	.30375	.2835	.27	.243	.2025	.162	.1215	.10125	.081
10 10 5	.4617	.38475	.3078	.28856	.26933	.2565	.23085	.19238	.1539	.11543	.09619	.07695
10 10 5 2½	.45016	.37513	.3001	.28135	.26259	.25009	.22508	.18757	.15005	.11254	.09378	.07503

Discount equivalents not shown on this card may be found as follows:

RULE: Multiply the complements of the discounts. The product will be their NET discount equivalent.
Raise the carriage with Reg. Trip Indicator at First Register.
Extend the first complement 55 and multiply by 90. Continue second operation in the same manner but after multiplying by the third complement depress the Discount Key on all remaining complements.

Operation: To find the NET discount equivalent for 45 - 10 - 7½ - 5%

	100		100		100		100			
Discounts	45		10		7½		5			
Complements	55	X	90	X	92½	X	95	=	43498	= NET DISCOUNT EQUIVALENT

LUMBER TABLE

TO BE USED WITH BURROUGHS ADDING, BILLING, BOOKKEEPING AND CALCULATING MACHINES

LENGTH IN FEET

Sizes in Inches	8	10	12	14	16	18	20	22	24	26	Sizes in Inches
1 x 2	1.33333	1.66667	2.	2.33333	2.66667	3.	3.33333	3.66667	4.	4.33333	1 x 2
1 x 3	2.	2.5	3.	3.5	4.	4.5	5.	5.5	6.	6.5	1 x 3
1 x 4	2.66667	3.33333	4.	4.66667	5.33333	6.	6.66667	7.33333	8.	8.66667	1 x 4
1 x 5	3.33333	4.16667	5.	5.83333	6.66667	7.5	8.33333	9.16667	10.	10.83333	1 x 5
1 x 6	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	1 x 6
1 x 8	5.33333	6.66667	8.	9.33333	10.66667	12.	13.33333	14.66667	16.	17.33333	1 x 8
1 x 10	6.66667	8.33333	10.	11.66667	13.33333	15.	16.66667	18.33333	20.	21.66667	1 x 10
1 x 12	8.	10.	12.	14.	16.	18.	20.	22.	24.	26.	1 x 12
1 x 14	9.33333	11.66667	14.	16.33333	18.66667	21.	23.33333	25.66667	28.	30.33333	1 x 14
1 x 16	10.66667	13.33333	16.	18.66667	21.33333	24.	26.66667	29.33333	32.	34.66667	1 x 16
1 x 18	12.	15.	18.	21.	24.	27.	30.	33.	36.	39.	1 x 18
1 x 20	13.33333	16.66667	20.	23.33333	26.66667	30.	33.33333	36.66667	40.	43.33333	1 x 20
1¼ x 4	3.33333	4.16667	5.	5.83333	6.66667	7.5	8.33333	9.16667	10.	10.83333	1¼ x 4
1¼ x 5	4.16667	5.20833	6.25	7.29167	8.33333	9.375	10.41667	11.45833	12.5	13.54167	1¼ x 5
1¼ x 6	5.	6.25	7.5	8.75	10.	11.25	12.5	13.75	15.	16.25	1¼ x 6
1¼ x 8	6.66667	8.33333	10.	11.66667	13.33333	15.	16.66667	18.33333	20.	21.66667	1¼ x 8
1¼ x 10	8.33333	10.41667	12.5	14.58333	16.66667	18.75	20.83333	22.91667	25.	27.08333	1¼ x 10
1¼ x 12	10.	12.5	15.	17.5	20.	22.5	25.	27.5	30.	32.5	1¼ x 12
1½ x 4	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	1½ x 4
1½ x 5	5.	6.25	7.5	8.75	10.	11.25	12.5	13.75	15.	16.25	1½ x 5
1½ x 6	6.	7.5	9.	10.5	12.	13.5	15.	16.5	18.	19.5	1½ x 6
1½ x 8	8.	10.	12.	14.	16.	18.	20.	22.	24.	26.	1½ x 8
1½ x 10	10.	12.5	15.	17.5	20.	22.5	25.	27.5	30.	32.5	1½ x 10
1½ x 12	12.	15.	18.	21.	24.	27.	30.	33.	36.	39.	1½ x 12
2 x 4	5.33333	6.66667	8.	9.33333	10.66667	12.	13.33333	14.66667	16.	17.33333	2 x 4
2 x 6	8.	10.	12.	14.	16.	18.	20.	22.	24.	26.	2 x 6
2 x 8	10.66667	13.33333	16.	18.66667	21.33333	24.	26.66667	29.33333	32.	34.66667	2 x 8
2 x 10	13.33333	16.66667	20.	23.33333	26.66667	30.	33.33333	36.66667	40.	43.33333	2 x 10
2 x 12	16.	20.	24.	28.	32.	36.	40.	44.	48.	52.	2 x 12
2 x 14	18.66667	23.33333	28.	32.66667	37.33333	42.	46.66667	51.33333	56.	60.66667	2 x 14
2 x 16	21.33333	26.66667	32.	37.33333	42.66667	48.	53.33333	58.66667	64.	69.33333	2 x 16
2½ x 12	20.	25.	30.	35.	40.	45.	50.	55.	60.	65.	2½ x 12
2½ x 14	23.33333	29.16667	35.	40.83333	46.66667	52.5	58.33333	64.16667	70.	75.83333	2½ x 14
2½ x 16	26.66667	33.33333	40.	46.66667	53.33333	60.	66.66667	73.33333	80.	86.66667	2½ x 16
3 x 6	12.	15.	18.	21.	24.	27.	30.	33.	36.	39.	3 x 6
3 x 8	16.	20.	24.	28.	32.	36.	40.	44.	48.	52.	3 x 8
3 x 10	20.	25.	30.	35.	40.	45.	50.	55.	60.	65.	3 x 10
3 x 12	24.	30.	36.	42.	48.	54.	60.	66.	72.	78.	3 x 12
3 x 14	28.	35.	42.	49.	56.	63.	70.	77.	84.	91.	3 x 14
3 x 16	32.	40.	48.	56.	64.	72.	80.	88.	96.	104.	3 x 16
4 x 4	10.66667	13.33333	16.	18.66667	21.33333	24.	26.66667	29.33333	32.	34.66667	4 x 4
4 x 6	16.	20.	24.	28.	32.	36.	40.	44.	48.	52.	4 x 6
4 x 8	21.33333	26.66667	32.	37.33333	42.66667	48.	53.33333	58.66667	64.	69.33333	4 x 8
4 x 10	26.66667	33.33333	40.	46.66667	53.33333	60.	66.66667	73.33333	80.	86.66667	4 x 10
4 x 12	32.	40.	48.	56.	64.	72.	80.	88.	96.	104.	4 x 12
4 x 14	37.33333	46.66667	56.	65.33333	74.66667	84.	93.33333	102.66667	112.	121.33333	4 x 14
6 x 6	24.	30.	36.	42.	48.	54.	60.	66.	72.	78.	6 x 6
6 x 8	32.	40.	48.	56.	64.	72.	80.	88.	96.	104.	6 x 8
6 x 10	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	6 x 10
6 x 12	48.	60.	72.	84.	96.	108.	120.	132.	144.	156.	6 x 12
6 x 14	56.	70.	84.	98.	112.	126.	140.	154.	168.	182.	6 x 14
6 x 16	64.	80.	96.	112.	128.	144.	160.	176.	192.	208.	6 x 16
8 x 8	42.66667	53.33333	64.	74.66667	85.33333	96.	106.66667	117.33333	128.	138.66667	8 x 8
8 x 10	53.33333	66.66667	80.	93.33333	106.66667	120.	133.33333	146.66667	160.	173.33333	8 x 10
8 x 12	64.	80.	96.	112.	128.	144.	160.	176.	192.	208.	8 x 12
8 x 14	74.66667	93.33333	112.	130.66667	149.33333	168.	186.66667	205.33333	224.	242.66667	8 x 14
10 x 10	66.66667	83.33333	100.	116.66667	133.33333	150.	166.66667	183.33333	200.	216.66667	10 x 10
10 x 12	80.	100.	120.	140.	160.	180.	200.	220.	240.	260.	10 x 12
10 x 14	93.33333	116.66667	140.	163.33333	186.66667	210.	233.33333	256.66667	280.	303.33333	10 x 14
10 x 16	106.66667	133.33333	160.	186.66667	213.33333	240.	266.66667	293.33333	320.	346.66667	10 x 16
12 x 12	96.	120.	144.	168.	192.	216.	240.	264.	288.	312.	12 x 12
12 x 14	112.	140.	168.	196.	224.	252.	280.	308.	336.	364.	12 x 14
12 x 16	128.	160.	192.	224.	256.	288.	320.	352.	384.	416.	12 x 16
14 x 14	130.66667	163.33333	196.	228.66667	261.33333	294.	326.66667	359.33333	392.	424.66667	14 x 14
14 x 16	149.33333	186.66667	224.	261.33333	298.66667	336.	373.33333	410.66667	448.	485.33333	14 x 16
Sizes in Inches	8	10	12	14	16	18	20	22	24	26	Sizes in Inches

LENGTH IN FEET

Interest Table

Constants for computing interest at rates from 1/8% to 12 7/8%

TO BE USED IN CONNECTION WITH BURROUGHS MOON-HOPKINS BILLING MACHINE

		1/8%	1/4%	3/8%	1/2%	5/8%	3/4%	7/8%	
0%		.000003472	.000006944	.000010416	.000013888	.000017361	.000020833	.000024305	0%
1%	.000277778	.000031250	.000034722	.000038194	.000041666	.000045138	.000048611	.000052083	1%
2%	.000055555	.000059027	.000062500	.000065972	.000069444	.000072916	.000076388	.000079861	2%
3%	.000083333	.000086805	.000090277	.000093750	.000097222	.000100694	.000104166	.000107638	3%
4%	.000111111	.000114583	.000118055	.000121527	.000125000	.000128472	.000131944	.000135416	4%
5%	.000138889	.000142361	.000145833	.000149305	.000152777	.000156250	.000159722	.000163194	5%
6%	.000166666	.000170139	.000173611	.000177083	.000180555	.000184027	.000187500	.000190972	6%
7%	.000194444	.000197916	.000201389	.000204861	.000208333	.000211805	.000215277	.000218750	7%
8%	.000222222	.000225694	.000229166	.000232639	.000236111	.000239583	.000243055	.000246527	8%
9%	.000250000	.000253472	.000256944	.000260416	.000263889	.000267361	.000270833	.000274305	9%
10%	.000277778	.000281250	.000284722	.000288194	.000291666	.000295139	.000298611	.000302083	10%
11%	.000305555	.000309028	.000312500	.000315972	.000319444	.000322916	.000326389	.000329861	11%
12%	.000333333	.000336805	.000340278	.000343750	.000347222	.000350694	.000354166	.000357639	12%

The above Constants are computed on the basis of a 360-day year.

RULE: When multiplying by the constant omit the small ciphers and point off the extra decimal places after multiplying by the number of days.

Multiply principle x constant x number of given days.

Example: $9867 45 for 28 days at 6¾%

Operation: $9867 45 X 01875 X 28 = $51 80

Division

Reciprocals for Bushels

APPLES	48	.0208333
BARLEY	48	.0208333
BEANS	60	.0166667
BRAN	20	.05
BUCKWHEAT	52	.0192307
CASTOR BEANS	46	.0217391
COAL	80	.0125
CORN IN EAR	70	.0142857
CORN, SHELLED	56	.0178571
CORN MEAL	50	.02
CLOVER SEED	60	.0166667
FLAX SEED	56	.0178571
HEMP SEED	44	.0227272
HUNGARIAN SEED	48	.0208333
LIME	80	.0125
MILLET SEED	50	.02
OATS	32	.03125
ONIONS	57	.0175438
PEAS	60	.0166667
POTATOES	60	.0166667
POTATOES, SWEET	56	.0178571
RYE	56	.0178571
SALT	50	.02
TIMOTHY SEED	45	.0222222
TURNIPS	42	.0238095
WHEAT	60	.0166667

When multiplying by the above reciprocals, do not point off all the way but leave two decimal points in order to carry the result out far enough to obtain the correct extension.

The figures to the left of the space in the result printed will represent whole numbers or bushels and the figures to the right of the space will represent the hundredths part of a bushel. This result is carried out to hundredths by omitting the two decimal points when using the reciprocal.

The result including the hundredths part of a bushel is automatically returned to the Multiplier (by use of the Front Total and Extend Keys) as a whole number. We must, therefore, point off two extra places when multiplying by the price to cancel the hundredths part of a bushel, which was set up in the Multiplier as a whole number.

Reciprocals

TON	2000 LBS	.oo05
LONG TON	2240 LBS	.oo0446428
GROSS	144	.oo694445
SQ INCHES	144 PER SQ FT	.oo694445

When multiplying by the above reciprocals omit the small ciphers.

Depress the Discount Key once, instead of depressing the Point-off Key once for each number to the right of the small ciphers.

The two ciphers are omitted when multiplying by the reciprocals in order to carry the result out to hundredths. Figures to the left of the space in the product represent whole numbers and figures to the right of the space represent the fractional part of hundredths.

As the two small ciphers were omitted when multiplying by the reciprocal, we therefore have two more places to point off after we have multiplied by the price. This will cancel the hundredths part of the number set up in the multiplier as a whole number.

Inches and Fractional Inches as Decimals of One Foot

INCHES		1	2	3	4	5
		08333	16667	25000	33333	41667
1/8	01042	09375	17708	26042	34375	42708
1/4	02083	10417	18750	27083	35417	43750
3/8	03124	11458	19792	28125	36458	44791
1/2	04166	12500	20833	29166	37500	45833
5/8	05208	13542	21875	30208	38542	46875
3/4	06250	14583	22917	31250	39583	47916
7/8	07292	15625	23958	32292	40625	48958

INCHES	6	7	8	9	10	11
	50000	58333	66667	75000	83333	91667
1/8	51041	59375	67708	76041	84375	92708
1/4	52083	60416	68750	77083	85416	93750
3/8	53125	61458	69791	78125	86458	94791
1/2	54166	62500	70833	79166	87500	95833
5/8	55208	63541	71875	80208	88541	96875
3/4	56250	64583	72916	81250	89583	97916
7/8	57291	65625	73958	82291	90625	98958

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PRODUCED IN THE BURROUGHS PRINT SHOP
AT DETROIT, MICH., U.S.A.
FORM 9900-2M-10-22-ADV. (C5116)